The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOLUME LIII CHICAGO, ILLINOIS, SEPTEMBER 4, 1909 NUMBER 10

Original Articles

PRESERVATIVES IN FOOD MATERIALS

THEIR DETECTION AND EFFECT *

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The use of preservatives in food materials has engaged the attention of sanitarians for a number of years and they have uniformly condemned the practice. Nevertheless new and hitherto unsuspected uses of preservatives are discovered from time to time notwithstanding the laws prohibiting their use.

The plea of the manufacturers is that the use of preservatives is absolutely necessary to keep the food materials, and also that it is not harmful.

During the past ten years nearly all of the states of the union have enacted laws which aim to prohibit the use of food preservatives. The national law of 1906 has served as a model for many of the state laws enacted since that time.

The Food and Drugs Act, passed by Congress and approved June 30, 1906, provides "for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes."

Section 7 of the act states that a food shall be deemed to be adulterated:

First: If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

Second: If any substance has been substituted wholly or in part for the article.

Third: If any valuable constituent of the article has been wholly or in part abstracted.

Fourth: If it is mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

Fifth: If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health: *Provided*, That when in the preparation of food products for shipment they are preserved by an external application applied in such a manner that the preservative is necessarily removed mechanically, or by maceration in water, or otherwise, and directions for the removal of said preservative shall be printed on the covering or the package, the provisions of this act shall be construed as applying only when said products are ready for consumption.

Sixth: If it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter.

*Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Regulation 12 explains the terms "coloring," "powdering," "coating," and "staining" as used in Section 7:

(a) Only harmless colors may be used in food products.

(b) The reduction of a substance to a powder to conceal inferiority in character is prohibited.

(c) The term "powdered" means the application of any powdered substance to the exterior portion of articles of food, or the reduction of a substance to a powder.

(d) The term "coated" means the application of any substance to the exterior portion of a food product.

(e) The term "stain" includes any change produced by the addition of any substance to the exterior portion of foods which in any way alters their natural tint.

Regulation 14 relates to the external application of preservatives:

(a) Poisonous or deleterious preservatives shall only be applied externally, and they and the food products shall be of a character which shall not permit the permeation of any of the preservative to the interior, or any portion of the interior, of the product.

(b) When these products are ready for consumption, if any portion of the added preservative shall have penetrated the food product, then the proviso of Section 7, paragraph 5, under "Foods," shall not obtain, and such food products shall then be subject to the regulations for food products in general.

(c) The preservatives applied must be of such a character that, until removed, the food products are inedible.

Regulation 15 relates to the wholesomeness of colors and preservatives:

(a) Respecting the wholesomeness of colors, preservatives, and other substances which are added to foods, the Secretary of Agriculture shall determine from chemical or other examination, under the authority of the agricultural appropriation act (Public 382, approved June 30, 1906), the names of those substances permitted or inhibited in food products; and such findings, when approved by the Secretary of the Treasury and the Secretary of Commerce and Labor, shall become a part of these regulations.

(b) The Secretary of Agriculture shall determine from time to time, in accordance with the authority conferred by the agricultural appropriation act (Public 382, approved June 30, 1906), the principles which shall guide the use of colors, preservatives, and other substances added to foods; and when concurred in by the Secretary of the Treasury and the Secretary of Commerce and Labor, the principles so established shall become a part of these regulations.

Food Inspection Decision 100, approved by Secretary Wilson Dec. 9, 1908, states:

In view of the extent of the bleaching process (flour bleached with nitrogen peroxid) and of the immense quantity of bleached flour now on hand or in process of manufacture, no prosecutions will be recommended by this Department for the manufacture and sale thereof in the District of Columbia or the territories or for transportation or sale in interstate or foreign commerce, for a period of six months from the date thereof.

Food Inspection Decision 101, approved by Secretary Wilson Dec. 18, 1908, states:

Benzoate of soda, in quantities not exceeding one-tenth of 1 per cent., may be added to those foods in which generally heretofore it has been used. The addition of benzoate of soda shall be plainly stated on the label of each package of such food.

Food Inspection Decision 102, dated Dec. 23, 1908, states:

Until further notice, vegetables greened with copper and which are otherwise suitable for food, will be allowed entry into the United States, if the label bears the statement that sulphate of copper or other copper salts have been used to color the vegetables.

The "pure food" laws of the following states conform in all important particulars to the national laws: Vermont, 1908; Massachusetts, 1908; Connecticut, 1907; New Jersey, 1908; Pennsylvania, 1909; Delaware, 1907; Virginia, 1908; West Virginia, 1907; North Carolina, 1907; Georgia, 1906; Kentucky, 1908; Tennessee, 1907; Illinois, 1907; Arkansas, Colorado, 1907; Texas, 1909; Oklahoma, 1909.

Food Inspection Decision 101 permits the use of one-tenth of one per cent. of sodium benzoate in "those foods in which generally heretofore it has been used." This provision is apparently so drawn as to make it permissible to use sodium benzoate in almost any food substance. Some of the states which permit the use of sodium benzoate restrict its use to certain substances, as catsup, etc., while others have even less definite restrictions than those of the United States law.

Aside from the food regulations of the United States, the laws of the following states permit the use of sodium benzoate in food: Maine, New Hampshire, Pennsylvania, North Carolina, Georgia, Iowa, Texas, North Dakota, South Dakota, Wyoming, Oregon, and Washington. In the laws of the other states sodium benzoate is not expressly mentioned, but the laws of most of the states appear to prohibit its use.

The use of benzoate of soda, permitted by Decision 101, is, to my view, an unmitigated evil since we have the assurance of many manufacturers that such use is absolutely unnecessary to preserve the food materials in which it is used.

Dr. H. W. Wiley, chief of the Bureau of Chemistry, United States Department of Agriculture, in Circular 39 of that department, gives the results of experiments and the general conclusions drawn from them as to the injurious effects of sodium benzoate, as follows:

From a careful study of the data in the individual cases and of the summaries of the results, it is evident that the administration of benzoic acid, either as such or in the form of benzoate of soda, is highly objectionable and produces a very serious disturbance of the metabolic functions, attended with injury to digestion and health.

As in the case of boric acid, salicylic acid, and sulphurous acid, this injury manifests itself in a number of different ways, both in the production of unfavorable symptoms and in the disturbance of metabolism. These injurious effects are evident in the medical and clinical data, which show great disturbances of digestion, attended by phenomena which are clearly indicative of irritation, nausea, headache, and, in a few cases, vomiting. These symptoms were not only well marked, but they were produced on healthy individuals, receiving good and nourishing food and living under proper sanitary conditions. It is not only fair to conclude, therefore, that under similar conditions of administration of benzoic acid or benzoate of soda in the case of weaker systems, or less resistant conditions of health, much more serious and lasting injury would be produced.

It was also noticed that the administration of benzoic acid and benzoate of soda was attended with a distinct loss of weight, indicative of either a disturbance of assimilation or an increased activity in those processes of the body which result in destruction of tissue. The production of a loss of weight in cases of this kind must be regarded as indicative of injurious effects.

The influence of the benzoic acid and benzoate of soda on metabolism was never of a character indicative of a favorable change therein. While often the metabolic changes were not strongly marked, such changes as were established were of an injurious nature. It is evident that the administration of these bodies, therefore, in the food tends to derange metabolism in an injurious way.

An important fact in connection with the administration of these bodies is found in the efforts which Nature makes to eliminate them from the system. In so far as possible the benzoic acid is converted into hippuric acid. There is a tendency usually manifested, however, to retain the benzoic acid in the body for a notable length of time, and this is much more marked in the case of benzoate of soda than in the case of benzoic acid.

While the administration of both of these bodies, therefore, is undoubtedly harmful, the injurious effects are pronounced more rapidly in the case of benzoic acid than they are in the case of benzoate of soda; the data, however, will show that the total harmful effect produced in the end is practically the same in both cases; hence there appears to be no reason for supposing that the administration of the preservative in the form of benzoate of soda can be justified by an argument relating to the less injurious effect thereof on health.

The occurrence of microscopic bodies in the urine is undoubtedly increased under the administration of benzoic acid in both forms, thus showing conclusively the tendency to stimulate the destructive activities of the body.

Coming to final consideration of all of these different phases of the subject, there is only one conclusion to be drawn from the data which have been presented, and that is that in the interests of health both benzoic acid and benzoate of soda should be excluded from food products. This conclusion is reached independently of any consideration of the conditions which it is alleged surround the processes of manufacture and which result in the demands of the manufacturers to be allowed to continue the use of these substances. This is a subject which must be discussed from an entirely different point of view and has no bearing whatever on the general conclusions which have been reached, namely, that both benzoic acid and benzoate of soda are bodies which, when added to foods, are injurious to health.

In view of the fact that benzoic acid and sodium benzoate are allowed by the national and state laws, I hoped to perfect a speedy and simple method of discovering these substances in food substances.

ANTIFERMENTATIVE TEST FOR THE PRESENCE OF PRESERVATIVES IN FOOD MATERIALS

I have made a large series of tests to ascertain with what degree of certainty the presence of preservatives may be detected in food by means of the antifermentative action of the preservatives on trypsin. The studies of Bliss and Novy[1] show that of the ordinary digestive ferments trypsin is injured to the greatest extent by formaldehyd, aside from the effect of the preservative on the food constituents themselves. These results are confirmed by those of Sheperd,[2] who found that nitrous acid affected pancreatic digestion in higher dilution than it did the other ferments which he employed. For these reasons I regarded trypsin as a delicate indication of the presence of preservatives in food.

The tests for the detection of preservatives in food were carried out by the addition of small amounts of the food to a definite volume of a sterile solution of casein and determining the inhibiting influence of the preserved food on the tryptic digestion of the casein by

1 Bliss and Novy: Jour. Exper. Med., 1899, iv, 47.
2. Sheperd: Report of Food and Dairy Commissioner, North Dakota, 1908.

the addition of a few drops of an alcoholic solution of acetic acid to the mixture at the end of a period of digestive action.

The following experiments may be cited as indicative of the results obtained in a large series of tests:

TABLE OF RESULTS

Thirteen test-tubes containing 2 c.c. casein solution and 0.5 c.c. trypsin solution, to which increasing quantities of milk serum were added and decreasing quantities of 0.85 per cent sodium chlorid solution. These tubes were incubated at 37.0 degrees C. for three-quarters of an hour, when the alcoholic acetic acid was added drop by drop, about six drops of the acetic acid to each tube:

Milk Serum.	NaCl.	Sodium Benzoate.	Sodium Sulphite.	Results.
0.0 c.c.	1.0 c.c.	.....	.....	Nearly complete digestion
0.1 c.c.	0.9 c.c.	.....	.....	Nearly complete digestion
0.2 c.c.	0.8 c.c.	.....	.....	Nearly complete digestion
0.3 c.c.	0.7 c.c.	.....	.....	Nearly complete digestion
0.4 c.c.	0.6 c.c.	.....	.....	Slight precipitate formed
0.5 c.c.	0.5 c.c.	.....	.....	Slight precipitate formed
0.6 c.c.	0.4 c.c.	.....	.....	Definite precipitate formed
0.7 c.c.	0.3 c.c.	.....	.....	Definite precipitate formed
0.8 c.c.	0.2 c.c.	.....	.....	Definite precipitate formed
0.9 c.c.	0.1 c.c.	.....	.....	Definite precipitate formed
1.0 c.c.	0.0 c.c.	.....	.....	Marked precipitate formed
0.0 c.c.	0.5 c.c.	0.5 c.c.	.....	Definite precipitate formed
0.0 c.c.	0.5 c.c.	.....	0.5 c.c.	Slight precipitate formed

Increasing quantities of milk serum exerted an ascending effect in inhibiting the tryptic digestion of the casein, indicating that some preservative had been added to the milk. The addition of 0.5 c.c. sodium benzoate solution (concentrated) produced a slightly greater inhibition of the tryptic digestion than did an equal quantity of the milk serum, while 0.5 c.c. sodium sulphite solution (concentrated) produced approximately a degree of inhibition of the tryptic digestion equal to that produced by an equal quantity of the milk serum.

I have also attempted to ascertain the reliability of the antifermentative test in the detection of preservatives in meat. The hacked meat is placed in a meat-press and the blood and juices expressed. The main difficulty in applying the test to the meat juices lies in the fact that normal blood serum exerts an antifermentative effect. I have attempted to overcome this influence by heating the meat juice and recovering the watery part of the juice for the tests. The tests with this final product have not been satisfactory because, apparently, the major portion of the preservatives is retained in the coagulated albumin of the blood serum, and in consequence the tests made on the watery part of the meat juice were never very decisive.

The evidence which scientific investigators have collected all shows that the addition of chemical preservatives to food substances is injurious to the consumer in several different ways:

1. The use of preservatives permits the use of food substances that are of inferior grade or that are not perfectly fresh.

2. The food preservatives when taken into the body must be eliminated subsequently; this operation entails extra labor on some special organ or organs, and this extra labor will sooner or later lead to direct injury.

3. Many of the food preservatives are direct poisons and their constant ingestion induces chronic poisoning with its concomitant effects.

4. The food preservatives have an antifermentative effect on the different digestive ferments, especially on trypsin, and thus retard digestion and interfere with assimilation.

5. The food preservatives act on the food substances in such a manner as to render them less easily digested or even wholly indigestible, and make it necessary for the body to deal with partly digested food or deprive it altogether of nutrition, especially of nitrogenous food.

6. In consequence of the use of food preservatives digestion and assimilation are interfered with, and the general nutrition of the body suffers through organs that are overtaxed and injured in attempting to eliminate the poisonous chemical substances, and in attempting to deal with imperfectly split food substances that may be in such a state as to preclude their utilization, especially on account of the lack of digestive ferments, because of the loss entailed through the destructive action of the food preservatives.

SUMMARY

Contrary to my expectations the use of the antifermentative test for the detection of preservatives in foods does not give results that are satisfactory in every particular. The employment of this test must be carried out in such a manner as to eliminate normal antifermentative effects in the food substances, and attempts to remove these normal antiferments may lead to the simultaneous removal of the preservative.

In view of our knowledge of the detrimental effects of chemical food preservatives there is no more reprehensible practice than that of permitting their use in foods in any quantity whatever. The better class of manufacturers and dealers have set us an example, which we should follow, in the fight which they are making against the enactment of laws that in any particular permit the use of chemical substances for the preservation of foods where their use is not absolutely necessary.

We should not allow the greed of unscrupulous manufacturers and dealers to overrule our knowledge of the evil effects of the use of food preservatives. The medical profession owes it to itself to uphold the laudable position assumed by Dr. Wiley in his crusade against food adulteration, and any course which falls short of this will stultify the profession in the eyes of educated humanity of to-day and for all time to come.

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THE PARASITOLOGY OF SYPHILIS *

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Syphilis has long been considered an infectious disease, but until recent years the discovery of the causal agent has eluded the most careful investigation. There has hardly been a pathologist or syphilographer of note who has not attempted to unravel the mystery. It would be impossible here to enumerate all the alleged causes that have been reported. Lassar has said that during the past twenty-five years at least 125 causes have been assigned to syphilis. It is evident that the great majority of these theories were very short-lived. There are three, however, that deserve mention. The bacillus which Lustgarten described in 1885 occupied the stage for several years, being defended by so good an observer as Weigert, but later it was shown to be identical with the smegma bacillus. The next appearance was Neissen's so-called syphilis bacillus. Recently Neissen[1] has published the

* Read in the Section on Dermatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Neissen: Der Syphilis Bacillus, Leipzig, 1908.

results of his fifteen years' work in the form of an extensive atlas profusely illustrating the remarkable transformation of his organism from the vegetable to the animal kingdom and back again. It is remarkable with what persistence Neissen has pursued his phantom. His is a case of "love's labor lost," for his results have never been confirmed.

Somewhat on the same order has been the work of Siegel,[2] who, in 1905, described his *Cytorrhyctes luis* along with cultural and inoculation experiments. Siegel's work attracted a great deal of attention, and, while the majority of observers failed to confirm Siegel's findings, a few, notably Merk,[3] Freund[4] and Jancke,[5] did confirm them. As a court of last resort, Schaudinn was selected to pass judgment on the cytorrhyctes, which he did very shortly, failing to confirm Siegel's work and announcing his own discovery of the *Spirochæta pallida*.

At the present time there is probably no one who believes in the cytorrhyctes, except Siegel and his pupils, and they were until recently busily engaged in explaining the cytorrhyctes as one of the developmental stages of the *Spirochæta pallida*.

Schaudinn and Hoffman[6] announced their discovery in May, 1905; and it is remarkable with what unanimity confirmatory observations were reported from all quarters. The bibliography on the subject is already enormous.

The organism, as described by Schaudinn, is an extremely slender thread, closely wound in the form of a spiral similar to a corkscrew. In length it varies from 7 to 21 microns. The ends are pointed and provided with flagellæ. It stains with most of the anilin dyes, but only very faintly; the best staining method is probably that of Giemsa, which stains the organisms a pale red. In tissues the best method of staining is that of Levaditi.

There have been many attempts made to grow the spirochete on artificial media, but they have been uniformly successful. Recently Schereschewsky[7] has reported successful results. Levaditi and others have reported a seeming increase in the number of organisms when grown in collodion sacs in the peritoneal cavity of rabbits. They have also been obtained in pure culture after inoculation into the anterior chamber of the eye of rabbits and other animals.

This brings up the question of inoculation experiments. Metchnikoff and Roux,[8] in 1903, demonstrated the susceptibility of the anthropoid apes to syphilis. Haensell,[9] in 1881, and Klebs,[10] Siegel[11] and Schultz[12] had all reported successful inoculation experiments, but on account of the absence of secondary manifestations or subinoculations their results are doubtful.

At the present time, however, there are numerous observations showing the pathogenicity of the spirochete. Finger and Landsteiner inoculated monkeys with spirochetal material and transmitted the infection from animal to animal through forty-five different monkeys. Metchnikoff and Roux, Neisser,[13] Hoffman and Brüning,[14] Mühlens[15] and many others have made successful inoculations and recovered the spirochete.

Bertarelli[16] was the first to demonstrate the susceptibility of rabbits. His results have been confirmed by Scherber,[17] Greef and Clausen,[18] Kraus and Volk[19] and many others. Bertarelli and Tomasezewski[20] carried the spirochete from rabbit to rabbit, and later to monkeys and guinea-pigs.

Hoffman[21] and Brüning have obtained positive results in dogs. It seems probable that most of the lower animals are susceptible to inoculation with the spirochete; only the higher monkeys, however, show evidence of secondary syphilis, the lower animals reacting only by the production of a local lesion at the site of the inoculation. Neisser[22] has shown, by experiments on several hundreds of monkeys, that, in spite of the fact that the lower monkeys do not develop evidence of general syphilis, the virus is distributed throughout the body.

In the face of so much confirmatory evidence it would seem useless for any one to deny the specificity of the spirochete; and yet there have been many who have done so.

It is manifestly impossible for the spirochete to pass through a Pasteur filter; yet Jancke,[23] a pupil of Siegel's, reports a successful inoculation with syphilitic material which had been passed through a Berkefeld-Chamberlain filter. This is in direct contradiction to the results obtained by Klingmüller and Baermann,[24] Metchnikoff[25] and Siebert.[26] Since Jancke did not find any spirochetes, nor did he make any subsequent inoculation experiments, it is possible that from the syphilitic toxins injected he obtained a local syphilid, analogous to the toxic tuberculids obtained by Zieler,[27] von Pirquet and others.

Another short-lived objection to the spirochete theory was the question of the identity of the so-called silver spirochetes obtained by the Levaditi[28] method of staining. They were held to be nerve fibrillæ, cell borders, fibrin, etc. The introduction of the dark-ground illuminator effectively put an end to this controversy.

Neisser ably sums up the question of the specificity of the spirochete as follows:

As long as we are not in a position to obtain the spirochete in pure culture, and with such a culture produce syphilis in the lower animals, the proof of the specificity of the *Spirochæta pallida* depends essentially on the demonstration of its constant presence in all syphilitic lesions and its constant absence in non-syphilitic lesions.

What are the facts in the case?

It may be said that the spirochete can be demonstrated in all chancres, and in their regional adenitis.

2. Siegel: München med. Wchnschr., 1905, lii, 1321.
3. Merk: Wien. klin. Wchnschr., 1905, xviii, No. 36, p. 926.
4. Freund: München med. Wchnschr., 1905, lii, No. 38, p. 1819.
5. Jancke: München med. Wchnschr., 1905, lii, No. 45, p. 2183.
6. Schaudinn and Hoffman: Arb. a. d. k. Gsndhtsamte, 1905, xxii, No. 2, p. 527.
7. Schereschewsky: Deutsch. med. Wchnschr., 1909, xxxv, No. 19, p. 835.
8. Metchnikoff and Roux: Etudes expérimentales sur la syphilis, Ann. de l'Inst. Pasteur, xvii, No. 12.
9. Haensell: Arch. f. Ophth. (Graefe's), xxvii, p. 93.
10. Klebs: Arch. f. exper. Path., 1879, v, 161.
11. Siegel: München med. Wchnschr., 1905, lii, 1321.
12. Schultz: Med. Klin., 1905, i, No. 19, p. 466.
13. Neisser: Deutsch. med. Wchnschr., 1905, xxi, No. 19, p. 748.
14. Hoffman and Brüning: Berl. klin. Wchnschr., 1905, xlii, No 46, p. 1450.
15. Mühlen's: Deutsch. med. Wchnschr., 1907, xxxiii, No. 30, p. 1207.
16. Bertarelli: Centralbl. f. Bact., xl, 64.
17. Scherber: Wien. klin. Wchnschr., 1906, xix, No. 24, p. 726.
18. Greef and Clausen: Deutsch. med. Wchnschr., 1906, xxxii, No. 36, p. 1454.
19. Kraus and Volk: Wiener. klin. Wchnschr., 1906, xix, No. 21, p. 620.
20. Quoted by Grouven: Med. Klin., 1907, iii, No. 26, p. 774.
21. Hoffman: Deutsch. med. Wchnschr., 1907, xxxiii, No. 14, p. 553.
22. Neisser: Die experimentelle Syphilis-Forschung nach ihrem gegenwärtigem Stand, Berlin, 1906.
23. Jancke: Med. Klin., 1907, iii, No. 17, p. 486.
24. Klingmüller and Baermann: Deutsch. med. Wchnschr., 1904, xxx, No. 21, p. 766.
25. Metchnikoff: Ann. de l'Inst. Pasteur, 1904, xviii.
26. Siebert: Deutsch. med. Wchnschr., 1905, xxxi, No. 41, p. 1642.
27. Zieler: München med. Wchnschr., 1908, lv, No. 39, p. 2046.
28. Levaditi: Compt. rend. Soc. Biol., 1905, lvii, 652.

and in all condylomata and mucous patches. Noeggerath and Staehelin[29] found them in the circulating blood. Rolshoven[30] found them in the blood in thirty out of forty cases; in one case, three weeks before the eruption. Hoffman[31] produced a successful inoculation of a monkey with blood from a man whose syphilis was of six months' duration and who had a profuse secondary syphilis. Bandi and Simonelli[32] obtained the organisms in the blood from a patch of secondary erythema. Veillon and Girard[33] found them in the capillaries of an erythematous patch. Jacquet and Sevin[34] found them in all secondary lesions. They have been found innumerable times in papular syphilids. Spitzer[35] found the organisms in a case of ulcerating syphilid of eight years' duration, also in a gumma of the scalp. Doutrelepont and Grouven[36] and Tomaszewski,[37] Schaudinn,[38] Hoffman, Neisser and many others have found the spirochete in gummata. They have been found by numerous observers in the placenta and umbilical cord. They are found in the great majority of cases of congenital syphilis and in all organs and tissues of that condition. Meyer[39] examined eighteen macerated non-syphilitic fetuses and failed to find any spirochetes.

They have been found many times in various internal organs in acquired syphilis; notably in the heart and blood vessels, especially in cases of aortitis and endarteritis, in the liver in syphilitic hepatitis, and in the kidneys in syphilitic nephritis. In spite of the increasing evidence of the syphilitic etiology of tabes and paresis, I have never heard of the *Spirochæta pallida* being found in the central nervous system in acquired syphilis. Gaucher and Merle[40] found the organisms in the cerebrospinal fluid of a patient with cerebral syphilis. Neisser[41] in a case of secondary syphilis found the spirochete in the spinal fluid. It is remarkable, however, how few observations there are on this subject.

To sum up, it may be said that the *Spirochæta pallida* has been found innumerable times in all the lesions of every stage of syphilis. In fact, the presence of the organism is the cause of the lesions. In studying these lesions one is struck with the marked variation in the number of organisms present. As a general rule, it may be said that the more acute the lesion the greater the number. The organisms, as a rule, occupy the intercellular lymph spaces, although it is not uncommon to find them within a cell. They are more numerous in the center of the lesion, diminishing toward the periphery, but extending even into the non-inflammatory area. A remarkable circumstance noticed by all observers is the vast number of organisms in congenital syphilis and the slight evidence of inflammatory change.

The discovery of the *Spirochæta pallida* has resulted in an entirely new pathogenesis for the disease. It has been found in the experimental work that the most successful method of inoculation is by rubbing the virus into a scarified area of the skin; this in addition to the fact that the genital region of animals is the most susceptible part of the body may account for the sexual transmission of the disease and the relatively small percentage of extragenital infections.

Given an inoculation, the infection for a time is purely local; during the period of incubation the virus proliferates until the irritation becomes sufficient to cause the tissues to react by the production of a local inflammatory area, which tends to necrosis, but undoubtedly may resolve. From this local focus a dissemination of the infecting organisms takes place, the most usual route being by way of the lymph channels, although there is no doubt that at times the dissemination is hematogenous. Wolters[42] and others have demonstrated sections of chancres showing the spirochete in the blood vessels. This opens up an interesting and important point, as to the time at which this dissemination occurs. There is not much doubt but that this varies within wide limits. Neisser[43] in a large series of experiments attempted to solve this question by excising the inoculated area at varying intervals of time. His results were not conclusive. He found that in six cases excision at periods from ten minutes to twelve days prevented dissemination; on the other hand, in ten other cases excision was useless, even when done as soon as eight to fourteen hours after inoculation.

In whatever manner and at whatever time dissemination takes place, it is eventually by means of the blood stream that the spirochetes are distributed throughout the body. They do not remain in the circulating blood, but locate in the tissues. They show a predilection for certain tissues and organs, notably the skin, lymphatic tissues, the circulatory system, glandular organs, and, as Neisser has shown, the bone-marrow. Wherever they locate they may cause an inflammatory reaction, which is more or less characteristic, aside from the spirochetal content.

From the results obtained by the Wassermann[44] reaction, it is evident that pathologic changes are much more frequent in the internal organs than we have heretofore suspected.

As dermatologists, we are particularly interested in the cutaneous localization of the spirochete. We no longer recognize a toxic syphilid; all the cutaneous manifestations of the disease represent foci of spirochetal growth in which the spirochetes may persist for long periods, and from which a new local or general dissemination may occur. This remarkable quality which the spirochetes possess of lying dormant for long periods, their presence seemingly causing no pathologic changes, accounts for many of the characteristic late secondary eruptions, such as the annular, circinate and corymbose syphilids.

This tendency of the infection to become latent accounts in part for the marked chronicity of the disease. Füresz[45] examined lesions from twenty-four cases to determine the effect of mercurial treatment on the presence of the spirochetes. In spite of the fact that the cases had from ten to fifty-five inunctions, spirochetes were found in seventeen cases. They could be found as long as the least grade of infiltration was present. In fact, the organisms have been found at the site of a previous eruption.

The question of immunity has taken on new life since the discovery of the spirochete. It has always seemed rather illogical that a syphilitic should be immune to

29. Noeggerath and Staehelin: München. med. Wchnschr., 1905, lii, No. 31, p. 1481.
30. Rolshoven: Med. Klin., 1907, iii, No. 33, p. 989.
31. Hoffman: Berl. klin. Wchnschr., 1905, xlii, No. 46, p. 1450.
32. Bandi and Simonelli: Centralbl. f. Bact. u. Parasitenk., xl, 64.
33. Veillon and Girard: Compt. rend. Soc. biol., 1905, lvii, 652.
34. Lesaurd: Ann. de dermat. et de syph., June, 1905.
35. Spitzer: Wien. klin. Wchnschr., 1905, xviii, No. 31, p. 822.
36. Doutrelpont and Grouven: Deutsch. med. Wchnschr., 1906, xxxii, No. 23, p. 908.
37. Tomaszewski: München med. Wchnschr., 1906, liii, 1301.
38. Levy-Bing: Le microörganisme de la syphilis, Paris, 1907, p. 211.
39. Meyer: Centralbl. f. Bact., 1. Abt., xlvi, No. 4.
40. Gaucher and Merle: Compt. rend. Acad. d. Sc., 1909, iii, 29.
41. Neisser: Abstr. in Berl. klin. Wchnschr., 1909, xlvi, No. 20, p. 934.
42. Atlas der aetiologischen und experimentellen Syphilis-Forschung, Berlin, 1908.
43. Neisser: Die experimentelle Syphilis-Forschung, p. 80.
44. Wassermann: Berl. klin. Wchnschr., 1907, xliv, No. 1, p. 12.
45. Füresz: Med. Klin., 1907, iii, No. 35, p. 1045.

heterogenous virus and not immune to his own virus. The experiments of Finger and Landsteiner and Neisser show that, strictly speaking, there is no immunity. The apparent immunity, such as expressed by Colles' and Profeta's law, has been shown by the results of the Wassermann reaction to be due to a latent syphilitic infection. This is also true of 47 to 57 per cent. of syphilitics after the usual treatment.

Admitting the etiologic rôle of the spirochete in syphilis, the question naturally arises: Of what value is the organism for diagnosis? Aside from the Wassermann reaction, the demonstration of the spirochete is the most reliable means at our disposal for the diagnosis of syphilis; as it is, these two factors give us practically absolute control of the diagnosis of syphilis in all its stages.

The greatest field for usefulness of the demonstration of the spirochete is in the diagnosis of primary syphilis; here it is far more reliable than the Wassermann reaction and much simpler. The spirochete can be demonstrated in every chancre and its contiguous enlarged lymphatic glands. I believe with Rona[46] that the finding of the spirochete permits a positive diagnosis to be made earlier than any other symptom. The Wassermann reaction in primary syphilis is not nearly so reliable and is infinitely more difficult of performance. The percentage of positive reactions increases in direct ratio to the duration of the infection; therefore the statistics of different observers vary greatly. When one considers the duration of the chancre, one finds that a positive Wassermann reaction is unusual before the third week, and that after that time the percentage of positive reactions increases up to the time of the general eruption, when it is practically 100.

Hoffman, Blumenthal and Roscher[47] all hold that in primary syphilis, diagnosis by means of the spirochete is simpler, quicker and more certain than the Wassermann reaction.

After the primary stage, the Wassermann reaction is so much more reliable that I have substituted it for the demonstration of the spirochete in doubtful cases.

The great drawback to the more widespread use of the demonstration of the spirochete for the diagnosis of primary syphilis has been the difficulty of staining the organism. Since the introduction of the Reichert dark-ground illuminator this is no longer a valid reason for the non-use of this most reliable means of diagnosis. By means of this instrument we are in a position to diagnose syphilis from the moment the initial lesion is first noticed. The method is so reliable, so simple and consumes so little time that there is no reason why it should not supplant all other methods of diagnosis.

As seen with the dark-ground illuminator the *Spirochæta pallida* is so characteristic that there is absolutely no difficulty in identifying it. The chief characteristics are as follows:

1. Size.—The spirochetes vary in length from 7 to 21 microns, being from one to three times the diameter of a red blood cell. It is not uncommon to see the organism longer than this, but I believe such forms to be composed of two or more individuals.

2. Shape.—They are seen to consist of an extremely slender thread closely wound in a corkscrew form, the windings being very acute. In fresh preparations the windings are absolutely regular, but as the specimen gets older the organism changes form, the most frequent change being an irregularity or obliteration of the windings in the central portion.

3. Position of Ends.—The ends of the pale spirochete are sharp and terminate on the periphery of the spiral and not in the center as in the other forms of spirochetes. This peculiarity is very characteristic, but is seen only when the organism rotates on its long axis.

4. Motility.—When the specimen is freshly prepared the organism is very active and possesses the following motions: (A) A rotation on its long axis in either direction; this motion is very rapid, but not necessarily accompanied by a change of position; as the specimen gets older this motion grows less. (B) It progresses from place to place, but not so rapidly as the other forms of spirochetes commonly met. (C) it has a quick and spasmodic bending or twisting motion. This form of movement increases as the specimen gets old, and at times one sees an organism bent in the form of a circle, resembling somewhat a crenated red blood corpuscle. It is not uncommon to find two organisms joined end to end. Again, one sees two or three organisms lying side by side.

The number of organisms found varies in the different lesions. They are most numerous in chancres, condylomata and mucous patches and vary from two or three in a field to sixty or eighty. Patients who have received some treatment show fewer organisms than the untreated ones. A few days' local treatment with calomel or other mercurial preparations causes a marked diminution in the number present in the chancre, although they are very numerous in the enlarged inguinal glands.

I have been using this method for two years and have never failed to find the organisms in chancres, mucous patches and condylomata. In our first communication,[48] Dr. Corbus and I reported finding the spirochete in mucous patches in three cases in which the syphilis was from one to three years old. Recently we found them in a mucous patch in which the infection was of eight and one-half years' duration. Neilsen[49] reports a case with a papulo-erosive syphilid of the mouth in which he demonstrated the spirochete nine years after the infection. Hoffman has reported a similar case and Papée[50] has reported one thirteen years after the initial lesion. These observations are important in view of the fact that some authorities are apt to belittle the contagiousness of syphilis after the fifth year.

Considering the simplicity and reliability of the dark-ground illuminator for the diagnosis of syphilitic lesions it is very strange that the method has not had a more universal application. We can explain this circumstance only by assuming that the profession has not a proper appreciation of the necessity for an early diagnosis. An early diagnosis permits us to institute a logical treatment; such a treatment should consist in the removal or destruction of the infected area at the earliest possible moment and the immediate institution of energetic mercurial medication.

In commenting on the results of excision in his experimental work, Neisser[51] says:

> These results are not very satisfying. In spite of them, however, I think now, as before, that excision should be done wherever possible. The value of excision is not affected by

46. Rona: Wien. med. Presse, 1907, No. 34.
47. Hoffman, Blumenthal and Roscher: Med. Klin., 1909, v, No. 7, p. 241.
48. Harris, Frederick G., and Corbus, B. C.: The Clinical Value of the Spirochæta pallida in the Diagnosis and Treatment of Syphilis, THE JOURNAL A. M. A., Dec. 5, 1908, li, 1928.
49. Neilsen: Monatsh. f. pract. Dermat., xlviii, No. 2, p. 5.
50. Papée: Monatsh. f. pract. Dermat., xlviii, No. 8, p. 347.
51. Neisser: Die experimentelle Syphilis-Forschung, p. 81.

these experimental results, since under all circumstances it must be useful to get rid of such an important focus of poison, as the chancre.

Hoffman says:[52]

Since the microscopic examination now allows us to diagnose the chancre early, we must try the effect of excision or destruction of the chancre at the earliest possible time, even if the experimental work does not permit us to expect to cure the disease. Still, the removal of such a large amount of virus, perhaps, may make the disease milder, especially when combined with energetic mercurial treatment.

The list of adherents of the method of excision and early treatment of syphilis is a growing one and includes such names as Neisser, Hoffman, Hallopeau, Volk, Scherber, Rona and Lukasiewicz. All authorities are agreed on the question of antispirochetal action of mercury, but the work with the Wassermann reaction has shown us that it is necessary that the treatment of syphilis should be more energetic and more individual than has been the custom. In fact, I believe that the control of the treatment, by means of the Wassermann test—the so-called biologic treatment—is a great advance in the therapeutics of syphilis.

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ABSTRACT OF DISCUSSION

DR. G. A. DESANTOS SAXE, New York City: Our knowledge of the *Spirochæta pallida* has progressed remarkably within the past two years, since Edward Spitzer, of Vienna, first showed the value of the dark-ground illuminator in recognizing this organism. There is still, however, a great deal to be learned, not only about the biologic character of the spirochete, but also about the practical aspects of the diagnosis of syphilis. Dr. Harris is very pessimistic on the subject of staining. The only method I know of that will give satisfaction in a fair proportion of cases is that of Schereschewsky, which was described in the *Centralblat für Bakteriologie*, October, 1907. This author was the first to recognize the difficulties of staining the *Spirochæta pallida*. They are twofold. First, the difficulty in spreading the smear in such a way that the erythrocytes will be sufficiently far apart to get the dye directly on the spirochetes. Second, the difficulty of avoiding precipitation in this delicate stain.

In order to obviate this, the following technic has been suggested by Schereschwesky: The clear serum from the sore, etc., obtained by means of a small curette, is spread on the slide and fixed with heat. The cubic centimeters of a 0.5 per cent. solution of pure glycerin and 13 drops of Giemsa's solution are heated in a test tube, which must be absolutely clean. The slightest trace of acid in the tube causes a precipitate, and renders the stain useless. Contact of the slide with any grease or acid, or traces of dye cause a precipitate. The slides, therefore, should never come in contact with the fingers, but should be stained on clean glass supports. The heated stain is allowed to remain for ten minutes, and is then washed off. This method has been used in a large series of cases by White and Avery, and with it they found the spirochete in 100 per cent of chancres. I have found the method very satisfactory when all the precautions mentioned were used. I was able to find the spirochete in chancres in 100 per cent. of the untreated cases, and these results were verified by control experiments with the dark-ground illuminator. After treatment with mercury, however, the number of cases in which the spirochete was found was reduced to 50 and even 25 per cent., according to the extent of the treatment. The dark-ground illumination method takes less time and is more satisfactory than the staining method, but it is not always convenient to have the dark-ground condenser at hand.

This brings up the question: With what shall we dilute our drop of secretion in preparing it for the dark-ground illumination? I have obtained the best results by using either water or salt solution. This point may seem a trifling one, but if the results without water and with water be compared, it will be found that the spirochete is three times as distinct after using water. It swells up, becoming more refractive, brilliant and distinct. The refractive index of the serum is such that dark-ground illumination does not show the spirochete so distinctly in serum as in water. This dilution process has one disadvantage, namely, that the spirochete loses its motility more quickly, but the organism can be kept alive for a sufficient time to make a satisfactory examination. This observation has also been made by Commandon.

Sometimes, if the motions of the spirochetes are watched for some time, one can see two of them come together, join heads or tails, and wind round each other for a part of the way, and sometimes for the entire way. Sometimes one of the organisms seizes a bit of protein matter and floats about with this tiny ball, just as with a headlight. These peculiarities are, as yet, unaccounted for, and much research is needed in this field.

DR. HOWARD FOX, New York: I should like an expression of opinion about the different apparatus used. For the past year I have tried both the Reichert and the Leitz dark-field illuminators. The instruments that are placed on the stage of the microscope such as the Reichert and Leitz (condenser B) are certainly much more convenient and cleanly than those inserted from beneath and that take the place of the Abbe condenser. I have used the Nernst lamp of from 50 to 60 candle power and it seems to me a perfectly satisfactory source of illumination. Does Dr. Harris for ordinary use consider the small arc light preferable to the Nernst lamp?

DR. MAXIMILIAN HERZOG, Chicago: Doctor Harris has not been the only or first one in Chicago who examined primary and secondary luetic lesions for spirochetes. I took up this work three years ago, on my return from the Philippine Islands, where I first became interested in it. I can confirm the observation of those who claim that the spirochetes are found in the great majority of cases in the primary and early secondary lesions. My first work was done before the dark-field condenser had been recommended and I had no great difficulty in finding the spirochetes in stained specimens, although it may take a great deal of time to find them in some instances, particularly in the late secondary lesions. Subsequently, I used the dark-field illuminator, but I generally found that if I could not detect the spirochetes after a prolonged search of stained specimens, I could not find them with the dark-field illuminator. I have frequently used a 50-candle power stereopticon incandescent lamp, in front of which I have a dark shield, and I employ the ordinary condenser, which is put on top of the stage. Dr. Saxe mentioned round, luminous bodies which he has found in connection with the spirochetes. These are probably due to optical effects and I would not attach much importance to the theory that the spirochete possibly feeds on these round bodies.

DR. WILLIAM S. GOTTHEIL, New York City: I should be the last to deprecate these newer methods of diagnosis, and yet I think that we are perhaps attributing a little too much importance to them, to the exclusion of the older and established methods, very much as was the case with the surgeons and the Roentgen ray. I had occasion, a number of months ago, to see a physician with a lesion of the finger which looked very much like a chancre. I sent him, not to a tyro, but to an expert, who examined the secretion from the lesion, and the report came back, "no spirochetes." The doctor returned to me a week later and said: "I know that this is an initial lesion." A second bacteriologic examination was made, and again the report came back, "no spirochetes." One week after that he developed a pigmented papular syphilide. I mention this case only that it may serve as a note of warning against the neglect of the ordinary and customary and long-established and satisfactory methods of chancre diagnosis.

DR. DOUGLASS W. MONTGOMERY, San Francisco: The assertion, I think, was made that amputation of the primary sore should be done to rid the patient of that much infection. I can not see very well how that would rid one of any considerable amount of infection. The primary sore is usually very

52. Hoffman: Deutsch. med. Wchnschr., 1905, xxxi, No. 4, p. 1712.

small, no larger than a papular syphilide, and if the assertion made by Dr. Harris would hold good, it might be considered proper to excise every papule of a papular syphilide in order to get rid of so much more infection. That would be an equally logical proposition, and as a result, the patient would certainly be well tattooed. I would ask: What grounds are there for amputating the chancre with the idea of ridding the patient of that amount of infection?

DR. M.S. HEIDINGSFELD, Cincinnati: I concur with Dr. Gottheil that we are in danger of placing too much reliance on comparatively new tests. While the value of the laboratory tests can not be questioned, they must still be regarded in the light of aids to clinical diagnosis rather than as absolute methods. The reports that emanate from the laboratory and which receive widespread attention are apt to lead the profession into serious error. I have known the diagnosis of syphilis essayed purely on laboratory tests in cases of suspected initial lesions which at the time were clinically negative and failed to show any confirmation after months of careful observation. I do not believe that the laboratory tests in syphilis have yet reached the degree of perfected development that they overshadow the clinical features in importance. With reference to the syphilometer: I found the syphilitic regulation test of two drops to be entirely too small to convey any degree of accuracy. The manufacturers kindly supplied me with a half pound of the taurin solution and when I repeated the test, using one or two grams of clear serum in place of one or two drops, they became uniformly positive in character, irrespective of the syphilitic or non-syphilitic character of the case.

DR. F. G. HARRIS, Chicago: In regard to the method of demonstrating the spirochete, to which several of the speakers referred, I worked for a long time with the staining method, with uniformly poor results. My organisms were indefinite in outline, and I was unable to identify them positively. We must have a live organism in order to make a positive diagnosis, an organism which is not deformed.

In my work, I employ the Reichert apparatus, which I prefer on account of its convenience. I use an arc light, although one may also use a Nernst lamp; with the new model of the Reichert apparatus the ordinary inverted Welsbach light may be employed.

To obtain the material, I simply irritate the chancre or mucous patch and collect the serum in a capillary tube, from which it is then blown on a clean cover glass, which is inverted on a clean slide. The specimen must be as thin as possible. If the preparation is too thick or the slide is too thick, the rays of light will not be focused at the proper point.

The characteristic movement of the spirochete in a fresh preparation is rotary, like that of an auger-bit, and that is one thing that we do not see in the stained specimen. The windings are absolutely regular in a fresh specimen, but later become somewhat irregular. In the stained specimen few of the organisms are characteristic, most of them have lost their regular windings, due to the traumatism of preparation.

As to Dr. Montgomery's question whether or not it would be proper to excise all the possible foci of infection in secondary syphilis, he misunderstood the purpose in view in amputating the original chancre. With the dark-field illumination method we are able to make the diagnosis from the very beginning of the chancre. I have found the spirochete in chancres one day old. In such cases, by amputating that focus and putting the patient on immediate treatment, we hope to abort the syphilis. Scherber, in the case referred to by Dr. Pernet, amputated the chancre and gave the patient two courses of inunctions and there were no further symptoms during the three years that he was kept under observation. By means of the dark-field illumination method we can make the diagnosis of syphilis very early, and the reasons for amputating the chancre are mainly for the purpose of preventing dissemination, just as the surgeon would remove the primary source of any other kind of infection. We remove the primary and chief focus of infection by excising the chancre, and depend on the mercury to destroy any spirochetes that are left behind. Why should we wait until the body is permeated with them?

DR. MAXIMILIAN HERZOG, Chicago: I do not think that there was any possible mistake about the character of the organism that I demonstrated in Chicago in the shape of photomicrographs. The smears had all been prepared from typical primary lesions, the cases in fact were followed up to the secondary stage. It would indeed have been strange if I should have had the misfortune to find only the *Spirochæta refringens* in typical primary lesions. Such a claim need hardly be discussed.

REGENERATION OF THE CORNEA *

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It has long been known that the epithelium of the cornea would regenerate itself after being destroyed intentionally or by accident.

Haller[1] as early as 1763, in his "Elementary Physiology of the Human Body," asserts that regeneration of the cornea takes place, and even the oldest ophthalmologists[2] assume that regeneration of corneal tissue occurs. In fact, Desmarres[3] states that, in experimenting on transplantation of the cornea, he has noted an increase in length of the corneal flap, and even a true regeneration. Mauchart,[4] Mead and Larry,[4] Wardrop,[4] Gulz[5], and Malgaigne[6] resected corneal scars, and found that healing took place with little or no scar. What is extremely interesting in the light of our present knowledge of the effect of an opium derivative, dionin, is the work of Muehlbauer[7] and Beger,[8] who resected the superficial layers of the cornea and succeeded in obtaining a clear cornea following the application of laudanum. Desmarres was unsuccessful in his attempt to verify these results, since the rabbits on which he operated contracted a severe purulent inflammation (infection?), resulting in heavy scars.

It is a matter of common observation that corneal wounds following cataract extractions heal so that it would be difficult to find the line of incision. Also numerous corneal opacities clear in time, where the question might easily arise as to whether there might not be a true regeneration of transparent corneal tissue in these cases.

The first systematic research for actual proof of corneal regeneration was made by F. C. Donders[4] in 1846, who suspected that it occurred, but did not think that there was sufficient proof to establish the fact. He accordingly conducted a series of experiments on twenty-two rabbit eyes, from which he resected a flap of cornea from one-third to two-thirds of its thickness, including generally about one-half of the area of the cornea or more. He examined six eyes microscopically and gives a tabulated report showing (1) the thickness of the cornea cut away, (2) the thickness of the uncut

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* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. "Vulnerato ex succo effuso pellucida renascitur, ut coram video, et late deleta nova redit, omnino ut epidermis." Haller: Elementa physiologiæ corporis humani, Lausanne, 1763, 363.
2. Mauchart, B. D.: De ungue oculi pure inter lamellas corneæ (defendet C. F. Bilger), Diss. Med., Tübingen, 1742; in Hallerus, Alb., Disputationes chir. selectæ, i, 394, Lausanne, 1755; abstr. in Donders, Note 6.
3. Desmarres: Ann. d'ocul., 1843, x, 5.
4. Donders, F. C.: Untersuchungen über die Regeneration der Hornhaut, Holländ. Beitr. zu d. Anat. u. Physiol. Wissensch., 1846-8, i, 387 to 400.
5. Gulz: Oesterr. med. Wchnschr., 1842, No. 2.
6. Ann. d'ocul., Fl. Cuniere, 1845, xiii, 211.
7. Himley: Die Krankheiten und Missbildungen des menschlichen Auges und deren Heilung, 1843, ii, 56.
8. Ueber die Verwundbarkeit des Auges und seiner Haute, nach Versuchen an Thieraugen, Ztschr. f. d. Ophth. (von Ammon's), iii, Nos. 2 and 4.

cornea, (3) the thickness of the operated part a definite period after operation, and (4) the thickness of the regenerated part in hundredths of millimeters.

He concludes that the epithelium on the injured part grows thicker than on the normal cornea; that the newly formed true corneal tissue never reaches the same thickness as that removed, but that the longer the time elapsed from the time of operation to the time of examination, the thicker it becomes; that when one-half to two-thirds of the thickness of the cornea is removed, neither inflammation nor any other abnormality occurs; and that epithelium covers the exposed surface within two days after the operation, with a gradual regeneration of cornea, slowly assuming its normal characteristics.

The only one following Donders, so far as I have been able to find, who conducted experiments on animals, and made microscopic examinations of the regenerated cornea was Reich.[9] He operated on thirty-two rabbit eyes and made twenty-two microscopic examinations with results similar to those of Donders. The longest time between operation and examination was nine months. His conclusions are that the reaction and the remaining scar are so slight that the removal of thick corneal opacities by the knife are not contraindicated, but that almost always irregular astigmatism and marked light diffusion results.

Waldeyer[10] says that Sanftleven, pupil of Cohnheim, admits the possibility of regeneration of the corneal cells.

The few clinically reported cases of regeneration, all except one, followed destruction of the corneal tissues from purulent ophthalmia. Kaempf[11] reports a case of pyorrhea in a soldier in whom, after the swelling of the lids had sufficiently subsided to permit an examination of the eyeball, an apparent complete destruction of the cornea was revealed, the surface being covered with slough. Within three weeks there was a regeneration of clear cornea, except in the central part, where there was an anterior synechia in both eyes. Four months later an iridectomy performed above and outward in either eye gave useful vision.

N. D. Staicovici[12] reports a case of complete regeneration of the cornea after its destruction down to Descemet's membrane following suppurative conjunctivitis.

A case is reported from Darier's clinic[11] in a man 67 years of age who had been blind for ten years with complete destruction of the cornea with a central prolapse of the iris. The prolapsed iris underwent an inflammation from infection during which the entire cornea sloughed off, leaving only Descemet's membrane, a final regeneration of clear cornea taking place.

H. Armaignac[13] observed, in a patient suffering from a very severe acute purulent coryza, a complete destruction of the cornea with the exception of Descemet's membrane. There was an almost complete staphyloma of the cornea with a central perforation. When the patient went home there was a ring of redness surrounding the cornea two millimeters wide composed of small capillaries which had the appearance of a new growth. The patient was given a 1 per cent. solution of picric acid to instill into the eye. Armaignac was astounded when, a month later, the patient returned to him with a complete regeneration of clear cornea. True, it was traversed by very fine capillaries and sprinkled with small vague opaque spots. The anterior chamber was re-established without synechia. Unfortunately, oblique illumination revealed the pupil almost blocked by a membranous exudate. The patient could distinguish the movement of fingers at thirty centimeters. Atropin failed to break up the adhesions, but one month later vision had reached one-twentieth. The same author[14] reported a case of regeneration of the cornea after a complete destruction of the membrane following purulent ophthalmia in a woman 60 years of age.

Peter A. Callan[15] saw the cornea regenerate after its destruction from ulcus serpens. The patient, a boy 17 years of age, appeared at the New York Eye and Ear Infirmary, Oct. 6, 1903, twenty-four hours after having been struck in the eye by a rivet. There was a circular ulcer three mm. to four mm., involving all the layers, filled with a creamy white mass, umbilicated in the center. Despite cauterization and other treatment, the ulcer increased in size until on October 11 the entire cornea was involved and on October 12 the anterior chamber abolished. The next day the slough disappeared, leaving Descemet's membrane exposed. October 14 there was no more suppuration and the eye was bandaged. On October 16 cicatrization was observed over the intact Descemet's membrane. Dionin in increasing strength was given, when by March the upper half had cleared so that the pupil was visible. On June 13 vision with + 3.5 D. cyl. ax. 105 degrees was 8/70. The cornea was quite clear in the upper third, but lower two-thirds more or less hazy, resembling an eye after recovery from a severe attack of interstitial keratitis.

H. L. Wolfner[16] reported a case in which a woman 32 years of age came with gonorrheal ophthalmia of right eye. The left eye had been removed in childhood. The socket of the left eye was also infected with gonococci. When first seen there was ulceration of the right cornea, which progressed until the entire cornea down to Descemet's membrane was destroyed. Neither Wolfner nor Dr. A. Alt, who saw the case in consultation, believed that there was any hope of preserving vision. Within six weeks to two months the cornea was practically regenerated. There resulted a very thin but clear cornea, except from a faint cloud just below the center, with a slight tendency toward keratoconus and a small deposit on the anterior capsule; vision, 14/120.

In view of the partial success of the results already obtained along this line, and encouraged by the knowledge accumulated by modern studies on regeneration in general, as well as by the fact that our former investigators had no knowledge of aseptic surgery, late in July, 1908, I began a series of experiments on rabbits. From then to March 10 thirty-one rabbit eyes have been used for experimentation. Five rabbits died before notations were finished, and these have been excluded from the report. The rabbits were cocainized and wrapped in a long towel, with only their heads pro-

9. Reich, M.: Ueber die Regeneration der Hornhaut, Klin. Monatsbl. f. Augenh., 1873, xi, 197-211.

10. In de Wecker and Landolt: Traité complète d'ophthalmologie, ii, 35.

11. Regeneration des grossten Theils der Hornhaute nach Pyorrhoe, Oesterr. Ztschr. f. pract. Heilk., 1868, xiv, 77-80.

12. Staicovici, N. D.: Doua cazuri de regenerere complecta a cornee i in urma destructiunei complecta a acestei memb. membrane, prin. procese de supurantiune conjunctivala, Rev. de chir., Bucharest, 1903, vii, 20.

13. Armaignac, H.: Regenerazione del tessuto cheratico, Boll. d'ocul., Firenze, 1897, xix, 161-164

14. Armaignac, H.: Un cas de règénération complète de la cornnée aprés un splacele total de cette membrane consécutif à une conjunctivite purulente chez une femme de 60 ans, Bull. et mém. Soc. Franc. d'opth., 1899, xvii, 287.

15. Regeneration of cornea. Report of case of ulcus serpens, Am. Med., July 9, 1904.

16. Regeneration of the Cornea; report of case at Ophthalmic Section of St. Louis Medical Society, June 10, 1908.

jecting, which served to keep them immovable. A thread was then passed through the conjunctiva and subconjunctival tissue so as to help fix the globe, which was held by the assistant who separated the lids. A flap of cornea was then dissected away varying from one-half to a little over two-thirds the thickness of the cornea, and including one-half, two-thirds, or even the entire area of the cornea, the extent of surface bared seeming to have little or no influence on the general healing process or regeneration. The only difference was that the smaller area was sooner covered by epithelium. Aside from taking general aseptic precautions at the time of the operation, no special means were taken for their after-care, the rabbits being placed in the cages without dressing or bandage. Only where occasionally there seemed to be a purulent or mucopurulent discharge after a day or two, a little powdered xeroform was dusted once daily over the cornea until the infection was controlled, which was usually within a few days. Also wherever there happened to be an unusual amount of secretion, purulent or otherwise, which might tend to agglutinate the lids, the lids were washed with warm water and the secretion removed. Following the operation the rabbits seemed to suffer no pain or inconvenience, the palpebral opening being held as wide open over the eye operated on as the sound eye, with no photophobia.

Where only half the cornea was removed, the posterior was selected as being more readily managed on account of escaping the incidental action of the membrana nictitans. The section was commenced by making a vertical incision from above downward through the median line from the upper corneal margin to the lower corneal margin, going as deep as judgment from experience would permit without puncturing Descemet's membrane. Then from the center of this line a similar cut was made horizontally backward to the posterior limbus. The triangular was then grasped with a fine conjunctival forceps, and with slight tension, and the knife held flat, the corneal tissue was easily peeled off. Sometimes where the flap looked thin a further attempt to resect another layer was made, but this usually ended disastrously by puncturing Descemet's membrane. When this occurred an ectasia corneæ, or even staphyloma of the cornea, almost invariably took place. Twenty-four hours after the operation there was usually some slight conjunctival injection. The resected surface had a stippled appearance as though covered with a thin layer of serum or lymph, but wiping the surface with a wet sponge did not seem to change its aspect. The cut edges had a slightly raised but rounded-off look. The transparency, however, was surprisingly little disturbed. This was also the case after forty-eight hours, when the raised edges had encroached several millimeters over the raw surface. There were at this time, however, no blood vessels over the cornea except that there was an increased vascularization at the limbus.

On the third day there is generally a small milky spot about the center of the resected area, but this usually disappears within a few days, when the cornea again shows a smooth surface, being completely covered by epithelium. The resected area now shows a general infiltration or haziness which is greatest at the line of incision, but at no time to such an extent that the pupil can not be seen throught it, unless infection supervenes. This haze gradually clears until about four to six weeks after the operation a casual examination would not determine an opacity, which can only be revealed in certain positions or by oblique illumination.

In those rabbits which have been kept several months the cornea is generally apparently perfectly clear by oblique illumination as well as by transillumination, with the exception of an occasionally small, slightly hazy area.

Microscopic serial sections have been made showing the fresh cornea immediately after resection; after twenty-four hours; after forty-eight hours; four days; seven days; two weeks; one month; two months, and so on up to seven months. The specimens show a gradual thickening of the cornea the longer the period from the time of operation. Experiments are also under way on other animals than rabbits. Since, however, enough time has not been had to complete the series, I have refrained from presenting at this time the results of microscopic examination, not wishing to draw too hasty or indefinite conclusions. This is consequently offered as a preliminary report.

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ABSTRACT OF DISCUSSION

DR. JOHN GREEN, JR., St. Louis: Through the courtesy of Dr. Wiener I had an opportunity of examining the animals operated on by him. The line of incision was represented by a very delicate linear scar and the area corresponding to the exsected portion was faintly nebulous. The nebula was visible only by oblique illumination. The contour of the cornea in the exsected portion seemed to be about the same as in the unoperated part. In future experiments it would be well to observe the reflections of the cornea from Placedo's disc before operation and for some months afterward, to determine, if possible, how much distortion of the corneal surface had occurred and whether regular or irregular astigmatism had developed. Two facts have been brought out which indicate that a true regeneration has taken place: First, the absence of any notable opacity shows that a very small amount, if any, of scar tissue has formed; second, the evenness of the corneal surface, there being no irregularities of the epithelium.

DR. WILLIAM ZENTMAYER, Philadelphia: Recently in a case of nodular keratitis I dissected out a nodule down to the membrane of Descemet and I can say that after a few weeks the corneal tissue apparently had been regenerated, as the resulting space was filled in almost to the level of the surrounding corneal level. I did not examine it with the loup, but with the naked eye it appeared transparent.

DR. R. L. RANDOLPH, Baltimore: I have been very much interested in these observations of Dr. Wiener, and have been long impressed with the reparative activity in the rabbit's eye particularly and in the eyes of the lower animals generally. Some years ago in some experimental work in the reproduction of the crystalline lens I succeeded in getting as many as three lenses from an eye in the course of a year. Whether this reproductivity finds any analogy in human beings is doubtful, but I cannot help thinking that what we call secondary cataract is perhaps an effort on the part of Nature to form a new lens. We know that the lens in the lower animals is formed by the reproduction of the cells on the anterior capsule by the growth of these cells into spindle cells and subsequently into lens fibers, and we have pretty much the same process in human beings. As regards the rabbit, I have been astonished at the quickness with which superficial abrasions of the cornea get well. A fine scratch across the cornea in the case of the rabbit will disappear absolutely in two or three hours, where it is perfectly possible in the human being still to reveal it late in the day with the aid of fluorescin. This is very surprising in view of the fact that the bacterial flora of the conjunctiva in the rabbit is practically identical with that of the human being; in other words, its cornea has much the same conditions to contend with as has the human. What this is due to I have never been able to say. It is suggested

that the leucocytes in the rabbit's cornea are exceedingly active. I am a little skeptical as to the repair of so serious a wound in the human as Dr. Wiener has spoken of.

DR. A. R. BAKER, Cleveland: No doubt all of us have seen cases of ophthalmia neonatorum in which there is an anterior polar cataract and doubtless there must have been a perforation of the cornea; and yet we have seen those persons later in life when little or no opacity of the cornea existed. I have seen several cases with 20/20 vision after the lens has been removed, so that it seems probable there may be a regeneration of the cornea in young persons. I do not think that I have ever seen this occur in adults, although we have all seen cases in which the epithelium has been entirely restored. Only recently in the case of a burn from an explosion of chemicals the corneæ of both eyes were entirely opaque. The physician in attendance gave a verdict of total blindness, yet in a few hours the entire epithelium peeled off and in the course of a few weeks the patient recovered perfect vision. We have all seen these cases. I must confess, however, that I am pessimistic as to the permanent result of regeneration of the deeper portions of the cornea. Many years ago I made experiments on guinea-pigs similar to those of the essayist; results were favorable at first, but disappointing later. Transplantation of the cornea has been one of the dreams of the oculist for hundreds of years. The primary results are always flattering, but the ultimate ones are disappointing.

DR. R. F. MILLER, St. Louis: Through the courtesy of Dr. Wiener I had an opportunity to see the animals he operated on, and I would like to say that many of these cases showed very beautiful results. I also happened to be present when he operated on the human, and I must say that from all appearances the outlook is certainly beautiful, and, as the doctor reported, about three days afterward the condition seemed to be about the same as in the animals. So I think the doctor has opened up a subject again which has been tried many times, but perhaps with careful detailed work he will be able to accomplish a great deal more than was accomplished twenty-five years ago. The work was very interesting to me and I think with future trials will give very good results.

DR. M. WIENER, St. Louis: In regard to the corneal reflections in these photographs which I pass around, there is one rabbit which shows the regular reflection of the window in the eye, while the other eye shows an irregular reflection of the window. In one eye we got a clear cornea after resection and in the other we got a fairly clear cornea. The reason we got the clear cornea is that I believe the cornea was dissected out as it should be, that is, in layers. The piece should not be taken out irregularly in ridges, but evenly, and it can easily be done, almost peeled off in separate layers. I think this is essential in order to get a clear and regular surface. So far as having a regeneration, one microscopic specimen surely shows thickening of the cornea in the late specimens from that of the earlier ones; also, immediately after the operation, microscopically we can see a distinct depression, which later smooths out perfectly. Dr. Randolph believed it could not be done in cases in which there had been serious inflammation. These experiments were done on account of my having read of and seen a case of regeneration of the cornea after a gonorrheal ophthalmia, and that is certainly a severe process of inflammation. If the cornea can regenerate after a gonorrheal ophthalmia we ought to be able to take a clean scar and resect it. Dr. Baker thought it would be feasible, perhaps, only in the young. I have taken old animals as well as young, and the regeneration of the cornea mentioned in this paper was in an adult. I mentioned in the paper that after the operation these animals were put in the cages and nothing done with them at all. Their eyes were left open. If there was an unusual amount of secretion it was wiped off from day to day and possibly a little antiseptic powder used. Now I have started a series of experiments to determine whether there is any more rapid regeneration or clearing in eyes not treated as compared with eyes treated with dionin.

Knowledge of Drugs.—"Learn how to prescribe remedies and you will complain less of their inefficacy and their dangers."—Cappiovaccio of Cremona in the sixteenth century.

THE OPERATIVE TREATMENT OF GLAUCOMA BY CYCLODIALYSIS *

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The operation of cyclodialysis suggested by Heine in 1905, consists in making an artificial communication between the anterior chamber and the suprachorioidal space, allowing a new channel for the escape of the aqueous humor and thus reducing intraocular tension. The operation is performed under local anesthesia by making an incision in the sclera 6 to 8 mm. posterior to the sclerocorneal junction after reflecting a conjunctival flap and with a bent spatula, separating the ciliary body from the overlying sclera and breaking through the pectinate ligament. A quadrant of the iris periphery is then detached. I have performed this operation in eighteen cases specially selected to test its merits. These cases have now been observed for a sufficiently long time to permit an opinion on the value of this operation.

The cases can be arranged in the following groups:

A. CHRONIC GLAUCOMA

These are cases in which an iridectomy did not succeed in permanently reducing the tension, or a contraindication to an iridectomy was present.

CASE 1.—R. B. M. Age 55. L. Vision=20/20—. T. (Tension)+1. Fn. (Field normal) Nov. 14, 1905; Iridectomy. T. again increased after six weeks. June 2, 1906: Cyclodialysis. At operation some difficulty in breaking through pectinate ligament. Aug. 1, 1906: Tn. V.=20/30. Dec. 1, 1906: Some opacities in posterior cortex of lens. Tn. (Tension normal) March 22, 1909: T. has remained normal without any miotics; cataract nearly mature.

CASE 2.—E. M. R. Age 60. Aug. 1, 1905: Iridectomy. Notwithstanding drops, eye showed tendency to be hard. V. = 20/30. F. contracted nasally and below. May 21, 1906: Cyclodialysis. During operation anterior chamber filled with blood. This was evacuated by paracentesis two days later. V.=20/40. On the last visit, May 6, 1908, V.=20/30; F. no change. Tn. Has occasionally used miotics.

CASES 3 AND 4.—S. G. Age 45. R. absolute glaucoma. L. 20/100. T.+. F. contracted nasally to 10 degrees. March 20, 1906: R. cyclodialysis. April 1, 1906: No reaction. No chorioidal detachment appreciable. Tn. April 4, 1906: L. cyclodialysis. April 20, 1906: R. T.+; L. Tn. March 10, 1907: R. T.+. L. 20/70. F. no change. T+½. To use drops. April 3, 1908: L. tension kept slightly elevated, hence cyclodialysis repeated in left eye. F. nasally contracted to 5 degrees. Incision in sclera external to old one. On introducing spatula instrument passed into anterior chamber without encountering any resistance. June 17, 1908: L. Tn. 20/70. R. T.+. Dec. 30, 1908: L. Tn. Feb. 24, 1909: L. Tn. R. T.+.

CASE 5.—M. W. Age 56. Marked arteriosclerosis. R. widely dilated pupil. T.+. Od. cup with atrophy. V.=20/100. F. nasal contraction to 5 degrees. May 2, 1907: Cyclodialysis. Uneventful. June 17, 1908: R. 20/200. Tn. No miotics. March 2, 1909: Tn. V.=20/200. No drops.

CASE 6.—P. P. Age 61. R. iridectomy, 1905. May 1, 1907: R. V.=20/200. F. 15 degrees nasal. 30 degrees temp. T.+ Cyclodialysis. Uneventful, June 10, 1908: R. 20/200—; T.+?. F. Slightly more contracted. March 8, 1909: T.+.

CASE 7.—A. G. Age 42. R. 20/200. F. 80 degrees temp. 35 degrees sup. 35 degrees inf. 30 degrees nasal. T.+. Aug. 27, 1908: Cyclodialysis. During operation anterior chamber filled with blood. That evening attack acute glaucoma, re-

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* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

lieved by hot applications, eserin (physostigmin) and dionin. Nov. 28, 1908: T.+. Arc of iris detached showed atrophy of stroma. Feb. 24, 1909: T.+.

CASES 8 AND 9.—J. S. (R. and L.) cup with atrophy. July 31, 1908: R. cyclodialysis. Aug. 7, 1908: L. cyclodialysis; both uneventful. Aug. 20, 1908: T.— in both. R. V.=m. h. (movements of hands) L. V.=20/70. F. 25 degrees nasal. 30 degrees sup. 10 degrees inf. 45 degrees, temp. September 9, 1908: Tn. each Oct. 12, 1908, last visit, Tn. each.

CASE 10.—F. W. Age 40. L. od. cup with atrophy. V.= hand movements in temporal field. T.+ Sept. 29, 1908: Cyclodialysis. Some hemorrhage and posterior adhesions. Oct. 13, 1908: T.—. Small hemorrhage on disc. November 27, Tn. F. had enlarged. March 29, 1909: L. opac. vitr. T.—. V. no change. F. enlarged.

CASE 11.—R. F. Age 50. L. iridectomy two years ago. Deep cup with atrophy. V.=20/100. F. contracted to small temporal area. T.+. June 27, 1908: Cyclodialysis. Uneventful. Feb. 20, 1909: V. 20/70. Tn. Field enlarged.

CASE 12.—T. C. A. Age 60. Feb. 27, 1907: L. V.=10/200. F. contracted to temporal half. T.+. Nov. 27, 1907: Cyclodialysis. Uneventful. T. reduced. Optical iridectomy later for old opacity of cornea. April 4, 1908, last visit, 10/200. Tn.

CASE 13.—A. S. Age 62. Chronic glaucoma with atrophy. L. 20/70—. T.+. Dec. 2, 1908: Cyclodialysis. Very difficult to enter anterior chamber. Jan. 26, 1909: Last visit. L. 20/100. Field enlarged out and down. Tn. (no miotics).

CASES 14 AND 15.—M. L. Age 26. V. always poor, especially for last six months. R. 20/200. T.+. F. irregular contraction. L. m. h. T.+. F. contracted to temporal and superior quadrant. Very deep cup. Pronounced atrophy. Dec. 18, 1907: R. cyclodialysis. T. reduced and remained minus. Dec. 26, 1907: L. cyclodialysis. After 1 week, T. rose again. Jan. 6, 1908: Repeated operation. T.— since. Jan. 20, 1908: R. 20/200. L. 20/200. Fields enlarged. Aug. 28, 1908: R. T.+ again. L. T.+. R. cyclodialysis repeated. Favorable except that it was followed by retinal hemorrhage in macula. Sudden attack acute glaucoma requiring paracentesis. Jan. 7, 1909: R. cyclodialysis repeated. Down and out. T. very soft. Cornea slightly collapsed. V. eccentric 3/200. L. T.— V.= 20/200. F. enlarged.

B. CONGENITAL GLAUCOMA

CASE 16.—J. G. Age 1 year. Parents first cousins. At six months diagnosis made. July 1, 1908: Deep cup. Prescribed pilocarpin. Eyes enlarged. Corneæ dull. Cyclodialysis in both. Sclera very thin. No resistance whatever at ligament. Aug. 1, 1908: R. again hard. L. Tn. Mother thought that child could now see. Dec. 30, 1908: Tn. each. Jan. 6, 1909: R. Tn. L. T+. Using pilocarpin 2 per cent.

C. EXTENSIVE CAPSULAR ADHESION TO CORNEA

CASE 17.—A. C. Age 30. Dec. 2, 1907: Struck in eye with stick. Transverse wound of cornea. Irideremia. Broad adhesion of lens capsule to corneal scar. T. remained hard notwithstanding all medicinal treatment. Jan. 20, 1908: Cyclodialysis. On passing spatula an obstruction encountered more posterior than usual. A quadrant detached. T. not perceptibly reduced. On following day eye very hard. This continued; tension somewhat reduced by daily pilocarpin sweats. Jan. 26, 1908: T.+. June 3, 1909. Glaucoma absolute and degenerate eye.

D. GLAUCOMA SECONDARY TO NEURORETINITIS WITH VASCULAR CHANGES AND RETINAL HEMORRHAGES

CASE 18.—S. Age 46. Acute glaucoma not controlled by miotics, sweats, and mercurial injections. Cyclodialysis. T. reduced for two days, then relapse. Patient lost sight of.

In brief the operation has failed in congenital glaucoma (Case 16), in glaucoma secondary to extensive capsular adhesion to the cornea (Case 17), and in glaucoma secondary to neuroretinitis with endarteritis and hemorrhages (Case 18). It has been partly successful in cases of chronic glaucoma (Cases 1 to 15) as will be seen in the following summary:

CASE 1.—T. remained normal without miotics to present date, a period of two years, nine months.

CASE 2.—T. remained normal with occasional use of miotics to date of last visit, two years.

CASE 3.—T. remained normal for one year then became hard.

CASE 4.—T. remained down for one year and a half, then operation repeated and T. has remained down to present date, eleven months.

CASE 5.—T. has remained down to date, one year, ten months. No miotics.

CASE 6.—T. remained down for one year, has now been somewhat raised for ten months, incompletely controlled by miotics.

CASE 7.—T. reduced for four months. Has now been elevated for three months.

CASES 8 AND 9.—T. down at last visit, two months, without drops.

CASE 10.—T. down now for six months since operation.

CASE 11.—T. down now for nine months.

CASE 12.—T. down during five months' period of observation.

CASE 13.—T. down at last visit, two months.

CASE 14.—T. down for one year, eight months, with enlargement of field; operation repeated then (August, 1908), followed by hemorrhage in macular region, attacks of acute glaucoma; operation repeated in January, 1909. T.— since. V. very much reduced as field is eccentric.

CASE 15.—T. down for one week. Operation repeated. T.— since; period of observation one year, three months. V. and F. improved.

These were all cases selected to test the value of cyclodialysis, in which an iridectomy had been performed with no permanent benefit or in which, on account of the advanced stage of the glaucoma, the atrophy of the optic nerve, the restricted field or the condition of the iris, not much result could be expected from an iridectomy. Of these the tension was reduced in eleven for observation-periods varying from two years and nine months to two months. In the remaining four the tension again became hard.

The operation is technically easy, much easier than a correct iridectomy. The difficulties encountered in breaking through the pectinate ligament differed and were readily recognized. In one in which at the second operation the same quadrant of iris was displaced, no resistance at all was felt as if a firm adhesion had not reformed. In one case this segment of iris subsequently developed distinct atrophy of the iris stroma. In one of the most favorable cases a cataract developed, the opacity beginning in the posterior cortex. It is impossible to say whether the cyclodialysis was responsible for this. The operation did not aggravate the condition except for a macular hemorrhage in one, and attacks of acute glaucoma in two. No vitreous disturbance or detachment of the chorioid were observed. The operation was repeated with benefit in three cases. In one (Case 14), the eye subsequently exhibited marked hypotony which apparently was not harmful but this again is a point requiring further observation. Why the operation succeeded in some, and in apparently similar cases the tension again rose, can not be explained.

It can be conservatively stated that cyclodialysis is of value in certain limited conditions; it is indicated in the advanced cases of chronic glaucoma, especially those in which iridectomy has not succeeded in reducing the tension. It can not in any way replace the classical operation of iridectomy or its recent modifications in incipient cases of chronic glaucoma.

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ABSTRACT OF DISCUSSION

DR. E. V. L. BROWN, Chicago: My experience with cyclodialysis extends over a period of but 16 months and has been confined to twelve operations on nine glaucomatous eyes, in which iridectomy could not be done or was inadvisable. A tabulation* of the data available at this time covers the following points: Name, address, age, type of glaucoma, cause of the glaucoma, duration of the preceding eye disease, probable duration of the increased tension, previous operations for glaucoma, reason why iridectomy was not done, date of cyclodialysis, eye operated on, site of scleral incision, extent of the separation of the root of the iris from the sclera, complications at the time of the operation, tension before operation, immediately after and three days after operation, as well as when the patient was last seen, any other cyclodialysis or iridectomy operation necessary, vision before and after operation, depth of the anterior chamber and dimensions of pupil, respectively before and after operation, subsequent elevation of tension, period of observation in which tension has remained normal, and a notation as to whether or not I consider the particular operation a success or a failure at this time.

The data may be summarized as follows: the operation was successful in five cases, 1, 2, 4, 5, 8 (55 per cent.) and was unsuccessful in four cases, 3, 6, 7, 9 (45 per cent.). In two of the successful cases (1 and 2) the patients required a second cyclodialysis to reduce the tension permanently, and a third eye (Case 3) had to be enucleated because increased tension and pain persisted after two cyclodialyses; in a fourth (Case 9) increased tension returned, and was permanently relieved first by iridectomy.

All the successful results were in secondary glaucoma cases; three were chronic glaucoma, two secondary to adherent leucoma (Cases 2 and 5), and one secondary to anterior iris root synechia (Case 1), and one was subacute and secondary to adherent leucoma (Case 8), and one was an acute case secondary to traumatic dislocation of the lens into the vitreous (Case 4). The increased tensions before operation were respectively +1, +1, +2, +1, +¾; average, +1. The probable duration of the preceding eye disease in these five cases was respectively, 9, 5¾, 2, 6, and ¾ months; average, 4¾ months. The probable duration of the increased tension was respectively about 1, 4, 4, 2½ and 1 week; average, 2 weeks. The subsequent period of freedom from glaucomatous tension has now been respectively over 13, 1½, 14, 11 and 12 months, or an average of ten months of normal tension.

The vision in the three chronic cases was and has remained *nil*; in the subacute case it improved from the counting of fingers at 3 meters to 20/30 with correction; in the acute case it improved from *nil* to 20/200. The depth of the anterior chamber was improved in only the two cases of adherent leucoma.

The four unsuccessful cases were all chronic, one of them secondary (to plastic iritis, Case 3) and three of them were of the primary type of the disease (Cases 6, 7, 9). The tensions before operation were +2, +2, +1, +1; average, +1½; the probable duration, 5, 9, 18 and 0 months; average, 6½ months. In the secondary glaucoma case another cyclodialysis was of no avail, and as no iridectomy could be performed the eye was enucleated. In one of the three primary cases (Case 9), the anterior chamber was so deepened that a successful iridectomy could be performed, and in the remaining two patients (Cases 6 and 7), there has been entire freedom from inflammation, tenderness and pain for 11 months in each case, although the tension is now +2 in each. I do not, therefore, consider these last two cases unqualified failures, although I have listed them among the failures; on the other hand, a second cyclodialysis may permanently relieve the increased tension in these cases, as it did in Cases 1 and 2. The patients have each consented to a second cyclodialysis.

From my own cases, I am therefore in favor of giving cyclodialysis a further thorough, and if necessary, repeated trial in glaucoma, at least in eyes blinded by chronic increased tension, and especially that form caused by and secondary to anterior synechia and adherent leucoma, in which an iridectomy can not be performed or is inadvisable.

DR. H. GIFFORD, Omaha: This operation is an excellent example of one which was conceived on a wrong principle, but has turned out to do pretty good work. I think if you expect it to produce a permanent opening from the anterior chamber into the suprachoroidal space you are going to be disappointed. The results of the microscopic examination do not bear out any such theory, and on general principles it is absurd to expect it. What this operation does do is to cause a certain atrophy of the ciliary processes, which are factors in producing the hypertension. I think it is important to recognize that this is the way it reduces the tension, because if a second operation is to be done it ought not to be done in the same place, but in a different one, so as to produce as much atrophy of the ciliary processes as is safe. Some will remember a series of experiments by Deutschmann many years ago in which he excised the ciliary processes without serious reaction and without interfering with the general macroscopic appearance of the eye, except by reducing the tension very materially. That, I think, is an explanation of the results of this operation. I might say a similar explanation has been suggested by Krauss of Breslau.

DR. W. H. WILDER, Chicago: I am not prepared to draw any definite conclusions from the limited experience I have had with this measure, but I have tried it in four cases, in one of which the result was most surprising and gratifying. It was a case of acute glaucoma with tension plus 2, vision 20/100, steamy cornea, contracted fields, especially at the nasal side and shallow anterior chamber. On preparing to do an iridectomy, the chamber seeemed so extremely shallow that I decided to do a cyclodialysis, as a preliminary to a later iridectomy. The operation was done with cocain anesthesia, and without difficulty. The following day the tension was normal and the pupil became smaller. In a few days the central vision began to improve, and at the end of two weeks I was pleased to note that the patient had 20/30 of vision, and that the fields had improved to about the normal limits. This fortunate condition remained for a period of four or five months, during which time I was studying the case, and then the man passed from my observation.

The operation might be performed as a substitute for anterior or posterior sclerotomy in those cases of acute glaucoma in which one wishes to lower the tension before attempting the more difficult iridectomy. If it is possible, as claimed by some observers, to reduce the tension gradually by proper and careful manipulation of the instrument with which the ligamentum pectinatum is detached, I can see now the operation might be valuable in cases of hemorrhagic glaucoma or in patients with extremely high tension in whom we fear hemorrhage or some serious accident in doing an iridectomy, or even a sclerotomy. In the other cases I had the results were doubtful, to say the least. In one it was repeated three times without good effect, but even a later iridectomy failed to relieve the condition.

Reinfection with Syphilis.—F. John has compiled 356 cases of reinfection with syphilis as recorded in international literature. The list includes 34 in which the first infection was inherited. His work is published as Nos. 525 of the *Sammlung klinischer Vorträge*, just issued, and forms a volume of 248 pages. The various cases are grouped in tables according to the manifestations of the second infection, and the opinions of 66 well-known clinicians are appended, some accepting the possibility of reinfection and the others doubting it. Neisser's experience with monkeys has converted him to the former view. John's conclusions from this material are that the evidence as to reinfection is not very conclusive to date, but that it seems probable that the acquired immunity is not absolute and becomes attenuated in time. Reinfection is no proof of the curability of the disease as it can occur with existing tertiary lesions. Reinfection is observed almost exclusively among the well-to-do. On the whole, he adds in conclusion, the majority of cases of reinfection on record are apocryphal.

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* Because of lack of space this table is omitted from THE JOURNAL, but it appears in the Transactions of the Section. A copy of the table will be sent to any one requesting it within four weeks and enclosing a stamped addressed envelope.

THE GENERAL PRACTITIONER AS AN ANESTHETIST *

DOUGLAS C. MORIARTA, M.D.
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My subject is of great importance to every practitioner of medicine, as there is none of us who does not have occasion at some time either to give an anesthetic or have one given. Any untoward result from the anesthetic affects the reputation of the operator; it matters not whether he is an isolated practitioner or a busy operator in one of our large clinics; for even if one expert in the administration of an anesthetic be in charge of the case the patient still looks to his surgeon for his safety and expects him to guard it.

You will agree with me that posing as a critic is not a pleasant position to assume, neither is it apt to be a popular one. Yet "fools rush in where angels fear to tread," and I shall venture to present my opinions in this very important field of our professional work. I feel sure it is the one field in the practice of medicine in which there is seemingly indifference and lack of proper comprehension.

At the beginning, I might say, I have reached the conclusion of many others, i. e., the danger of anesthesia is largely due to the anesthetist. I do not mean by this that there are not pathologic conditions necessitating a particular anesthetic which, when administered, may result disastrously for the patient, and the result be due entirely to the drug. But I do say that I believe it is safer for the average patient to have one of the more dangerous anesthetics, chloroform, for instance, administered by one competent to give it, than it is to have ether, the safest of all anesthetics, given by an indifferent practitioner. And by "indifferent practitioner" I mean a person who is careless in observing the physiologic action of the drug, or the pathologic condition produced by it; this, either through ignorance or because the anesthetist becomes interested in the operative procedures, or allows his attention to be distracted by those present, either nurses or visitors. Morally, I believe that we are occasionally responsible for a fatal anesthesia, and technically such a result approaches malpractice (and that we have not been called on to defend our acts in these cases, in civil procedures, is fortunate). That this is so is, to my mind, a stigma against our profession; for why should not a patient have as much right to expect and exact skill in this branch of medicine as in the treatment of a fracture, in a pneumonia or typhoid fever? And if a civil action were brought to recover alleged damages, and your attorney attempted to prove you qualified as a competent anesthetist at the trial, how much teaching or clinical instruction could you certify as having had? About all that the average practitioner could say, if called on to show himself qualified, would be that he was a regularly graduated physician and surgeon, and supposed to know and be familiar with anesthetics, their administration and resulting anesthesia. And, I ask, what percentage of us have received clinical training or instruction in the administration of anesthetics? The number is so small that it is a disgrace to our colleges. And the general teaching has not materially improved. Even at this present writing there are only a few of our colleges where this most important branch of our curriculum is taught clinically; and, to repeat, is it not a disgrace to those in which it is not? And, if the actual state of affairs were appreciated by the public, even by the board of regents, would not a reform be demanded in this particular?

Those of us who were not taught the proper administration of anesthetics while at school, and who realize our lack of education and skill and seek to inform ourselves in the art, must visit for this purpose the leading clinics of the country; for at what other place or institution can the knowledge be acquired? But the one who does so visit these clinics will do well if he is not deceived by the procedures of the anesthetists, who may there be witnessed doing their routine work. For I unhesitatingly state that during the past few years I have seen some of the most atrocious examples of this work in the clinics of surgeons of national and even international reputation that I have ever observed anywhere. I mention with much pleasure, however, two clinics where the technic in anesthesia seems ideal; I refer to the clinics of the Mayos of Rochester, and Crile of Cleveland.

The amount of information to be acquired in this art by a visit to either place, if you are accorded the privilege of observing their methods, is marvelous and well worth the time of any practitioner. If one has not the opportunity for such observation at these places, then some other instructive clinic should be substituted, or this particular work should be refused until the proposed anesthetist has properly prepared himself.

I purpose discussing the anesthetist only on the clinical side, and I state without fear of contradiction that those of us who are doing this line of work—I speak, of course, of the profession as a whole and do not include the few who have become proficient in the art—do not seem to realize or appreciate the responsibility or dangers, or our lack of the qualifications necessary, in order skilfully to perform the work we are undertaking. For surely, if we stop to think, we must know that the life, as well as the immediate comfort of the patient, is in our hands. In making these statements, I do not have in mind the desperate cases, which tax the skill of the trained anesthetist; nor yet the skill needful to determine the particular anesthetic indicated in some few pathologic conditions; or the method to be employed in particular cases. But I refer to the ordinary physician, administering an anesthetic as he is wont to do in his routine work, when the patient is considered to be in a safe condition to endure such procedures as are anticipated by the operator. Thus I believe the proper amount of care is not generally exercised in administering anesthetics, and I am constrained to say so, because my deductions are drawn from many observations, including my own work.

I may justly be criticized, and the question may be asked why I do not improve my methods, if I am convinced, as I have stated, of existing defects. My reply would be that it is easier to ask the question than to answer it with the proper justification. I admit that the fact that a patient can not pay for the skill of a trained anesthetist is no justification; neither is the fact that precedent directs that an interne must acquire the knowledge incident to the proper administration of anesthetics, as a matter of convenience, a justification; or that some associate is willing to serve in this capacity, although deficient in experience. And I might further emphasize the situation by saying that if we accept work necessitating an anesthetic, and serious complications follow its administration, there is no justification for us, unless a competent anesthetist was administering the anesthetic. For it goes without saying that all pa-

* Read before the Saratoga County Medical Society, Feb. 14, 1909.

tients are entitled to, and should be given, the safest possible care when they place their lives in our hands, and how they may have it is the problem always confronting us. I am growing more and more to believe that only a few are adapted to this work; some will never be safe when serving in this capacity, regardless of opportunity or experience. Perhaps, like those in other special lines, anesthetists are "born, not made."

But to whom are we to trust our patients requiring an anesthetist, and what should be the qualifications of the one whom we shall select for this duty? The first part of this query seems easy to answer, and one might say, "Employ only a competent person." But how is the general practitioner, the occasional operator, or the small hospital always to secure a competent anesthetist? The only reply is that we should acknowledge our defects, if they exist as I have stated, and proceed to correct them by raising the standard of the whole profession in this art.

In opposition to this statement, it might be urged that the task, when the entire profession is considered, is too great, and it can never be accomplished. On the contrary, in my judgment, as soon as the necessity is appreciated by the profession at large, it will be met, as well and as easily as was the acquiring of aseptic methods in our surgical work five years ago, at which time it was shown that the safety of our patients demanded it.

The second part of the query is not difficult to answer, because a safe and proper technic is known; and it only remains for us to inform ourselves in regard to its details. Surely an anesthetist should be thoroughly familiar with, and trained in, the administering of the drug; he should know its action and peculiarities in different instances, and thus be able to recognize the earliest danger symptoms, and know how to meet them.

Watchfulness will prove a valuable prophylactic measure. The successful anesthetist will be an individual of keen perceptions, of good judgment, of a pleasing personality, and one capable of securing the confidence of the patient, and of controlling and arranging all details incident to the anesthesia, from the time he commences the anesthetic until the surgeon has finished.

Finally, an accurate knowledge of the relative sensitiveness of regional fields is imperative. No person who dislikes administering an anesthetic, or who has an irritable temperament, or gruff manners, and can not appear to be interested in the patient's welfare, or one who is habitually in a hurry or can not give his entire thought to the anesthesia, should ever be allowed or attempt to give one.

In every case in which an anesthetic is administered, there are certain imperative cardinal principles which should be scrupulously observed.

The anesthetist should never be in a hurry, as his apparent haste is apt to alarm the patient, while a few moments spent with the latter in quiet conversation is of the greatest benefit and invariably a time-saver. He should examine and determine for himself the condition of the lungs and heart, and if not previously informed should learn the condition of the urinary secretions. At this time he can also ascertain if there are any loose teeth in the mouth and determine if the patient is properly clothed. He should also explain that the sensation of choking produced by the anesthetic is a common one and is not attended with danger; and that if at this time the patient can control himself he will drop off to sleep quietly and easily.

Before commencing the anesthetic, emergency remedies should be at hand and ready for use. The time at which he should begin the anesthetic should be planned with the operator, so that the patient will not have to wait for the operator, as it is decidedly better and safer practice for the operator to wait for the patient.

The anesthetic to be used should be determined by the anesthetist and operator, and the method should be the one with which the individual is most familiar, and by which he can safely and easily produce the lightest anesthesia under which the operator may proceed. He should be in touch with the operator in the steps of the procedure that the sleep may be as light as possible and yet the operator not be delayed by too slight an anesthesia. A profound anesthesia is always dangerous and should be avoided if possible.

Once the anesthetist has begun, all unusual noise, bustle or excitement should cease. I do not mean that the usual preparations should not proceed, but they should be carried on in an orderly and methodical manner, that there may be no unusual noise to disturb the patient.

I am sure that there is a positive psychical advantage in the anesthetist's keeping up a conversation and talking to the patient from the time he starts the anesthetic; it reassures patients and quiets them and they will drop off to sleep more easily. Under no condition should he ever direct the patient to take a full long breath; and from the time the patient goes to sleep until the operation is finished he should be on the alert to the patient's condition, carefully watching the vital forces, as well as observing the earliest manifestations of approaching danger. I believe that the anesthetist should remain with the patient until he is safely in bed and in the hands of some one competent to determine postoperative complications.

In conclusion, I believe that the Anesthesia Commission of the American Medical Association should formulate specific directions for the guidance of the general practitioner, which should be an exact and concise description of the one best method to be generally followed, and this should represent the consensus of opinion. In making this statement, I am not unmindful of the value of the information contained in the report of this commission at Chicago in 1908, in which has been fully outlined the advantages of and contraindications against each of the several anesthetics, as well as the various devices employed in its administration. But I believe and know that the isolated general practitioner would very much appreciate and be greatly benefited by a direct expression concerning one method which he could adopt and feel secure that he was backed by such an authority. The directions should be concise, and yet in sufficient detail; possibly the advantages of such uniform procedure might extend to others who believe themselves competent. It would then only be necessary for the practitioner to differentiate in exceptional cases.

Resistance.—Dr. S. Flexner gives in his university lecture on "Public Health" at Columbia University (*Popular Science Monthly*, July, 1909) a clear exposition for intelligent laymen of the resources of the body for the resistance of disease and the artificial means of increasing them, developed by modern biologic research. The fact is clearly brought out that so far serum treatment has been successful chiefly in a prophylactic way because, when used with the disease well established, the destruction of a large number of bacteria is liable to set free an amount of poison with which the organism in unable to cope. This fact clearly appreciated by laymen, should give an added reason for attention to the public health.

THE ROENTGEN RAYS IN DENTISTRY*

G. E. PFAHLER, M.D.
PHILADELPHIA

That the Roentgen rays are useful in dentistry needs no argument before this Section, and that they should be more generally used I believe will be affirmed by all who have had experience with them. Most of the patients who are finally sent to the roentgenologist for examination have usually suffered months and even years with conditions that only needed a Roentgen examination to make the diagnosis clear and the line of treatment definite. As a matter of fact, most of the patients that come to me are those who have finally reached the consultant, who recognized the importance of an examination. Some of these patients had been tampered with for months or years by general practitioners of medicine or dentistry, and often teeth have been unnecessarily sacrificed. Surely the dentist with the greatest experience needs this exact method of diagnosis least; and yet, I repeat, nearly all my patients come from the consulting dental surgeon.

There is scarcely a case in dentistry in which some definite information can not be obtained, but it would be absurd to say that every patient should be examined with the Roentgen rays. It is, however, only fair to patients that every chronic or obscure case should have the benefit of this method of exact diagnosis. The skill of the modern dentist is simply marvelous and it is the most expert who welcome aid in diagnosis.

OBJECTIONS TO AN X-RAY EXAMINATION

To-day there can be no real objection to an *x*-ray examination. It is clean, aseptic, painless, and absolutely without danger in the hands of an expert. The reason for discussing this subject is the morbid fear that has often been aroused in the minds of patients by stories published in lay journals. Most of these stories have been true, but the facts have been misinterpreted and misapplied. That the rays have done damage no one can deny, but practically all damaging results occurred in the early days of roentgenography or in the hands of incompetent men.

During the past nine years in which I have been specially interested in dental roentgenography I have never had a harmful result following one of these examinations. To-day they are made with a few seconds' exposure, usually not over five, and never over thirty seconds. Any danger present to-day comes to the operator, who should do no work until he has learned to protect himself.

The fluoroscope has no place in dentistry. It is clumsy, inaccurate and dangerous to both the patient and operator. Lange[1] says:

> To the indiscriminate use of the fluoroscope many of the early errors in *x*-ray work can be directly traced. The image on the screen bears no comparison to the fine detail and distinctness which is obtained in the photographic plate or film.

A FEW HINTS IN TECHNIC

The rays should be confined to the area examined. They should be directed accurately to the point of greatest interest. This can be accomplished by means of the localizer which I described two years ago[2] before this Section. The same result can be fairly well accomplished when small cylinders are used. Secondary rays should be eliminated by means of diaphragms and cylinders.

When the disease or symptoms are confined to a few teeth or roots, and especially when affecting the upper jaw, the best results are obtained by placing a small film in the mouth. In this way the film is brought into almost direct contact with the teeth and the alveolar process, and the most beautiful detail is obtained. If, however, the bone, the accessory sinuses or large dental areas are to be studied, the roentgenograph is best obtained by the use of a plate placed outside of the mouth or face. Before this Section two years ago I described the technic by which every part of both the upper and the lower jaws could be clearly shown on the plate. Generally speaking, one should expect only two or three teeth clearly shown on either film or plate, and on this account the dentist should designate as nearly as possible the area to be examined.

The use of the plate is absolutely necessary in the study of the bone or the accessory sinuses, but it is also very desirable in searching for missing or unerupted teeth, in which instance a small film might not include the missing tooth and might thus lead to an error. Generally I use both film and plate and thus make one confirm or rectify the other.

The roentgenograph or *x*-ray picture is an accurate photographic record of the variations in density of the tissues traversed by the rays. The rays obey absolute physical laws, and when there is any error from their use it is due to the one who uses them or the one who interprets the plate, and not to the rays. The interpretation of the plate or film is much more difficult than the making of it. For the proper interpretation of the negative one should know the conditions under which the plate was made and the appearance of the normal tissues under such conditions; also, one should in a general way be familiar with the pathologic appearance of the tissues. I believe that the best results will be accomplished if the roentgenologist and the dentist confer on each difficult plate.

The degrees of density as measured by the rays are, in order, as follows: The greatest density is shown by metallic fillings, then by root fillings; next in density is the enamel, then the dentine, and finally the cancellous structure of the maxilla and alveolar process.

The value of a roentgenograph depends very much on a careful study of details, and therefore one of the first requisites is that it show rich detail. For observing the fine lines of the tooth-structure and of the alveolar process the negative or film itself must be used, and this must be good. Much is lost in any reproduction.

THE STUDY OF THE NEGATIVE

Next in importance for reading a roentgenograph is a careful lighting of the film or negative. A uniform white light is necessary. This white light can best be obtained by means of an illumination box, or by light reflected from a sheet of white paper, or by light reflected from the northern sky. The film or negative should be surrounded by a black surface so that the eye can be concentrated on the small point of study. If attention be given to these points, almost every one can appreciate the value of the examination. Very often good negatives are condemned by untrained men, because they see little or nothing when they hold the negatives before a gas or eclectric lamp. This gives a yellow light and the beautiful detail is thus lost.

Read in the Section on Stomatology of the American Medical Association, at the Sixtieth Annual Session, at Atlantic City, June, 1909.

1. Lange: Lancet-Clinic, May 16, 1908.
2. Pfahler, G. E.: The Roentgen Rays in Oral Surgery, THE JOURNAL A. M. A., 1908, l. 432.

If studied by correct methods, the ordinary film should show that the root is smooth in contour, although it may be variously curved, and that the cancellated alveolus hugs the tooth closely. The root canal can usually be easily recognized and is smooth in outline. The dentine is normally uniform in density. The alveolar process is uniformly mottled and shows the beautiful cancellous network.

ROOTS, ROOT-ABSCESSES, EXOSTOSES, AND PULP STONES

Now, what are the pathologic appearances and conditions that may be observed? Points of decay or abscess within the root itself show an interrupting disturbance in the dentine indicated by a light area.

Incomplete filling of the root canal may be shown. A pericementitis is shown by a light space between the root surface and the alveolus, and the root surface is roughened. Abscesses about the tip of the root or in the alveolus are likewise recognized by light areas in which no cancellous structure can be made out.

Many of the cases coming before the dentist present symptoms of obscure origin; sometimes sinuses exist whose source is a riddle, and these may persist for a long time. Probing seems to be attended with some danger of spreading the infection to healthy tissues. Sometimes these abscesses follow dental work, either crowning or filling. At other times inflammation may exist simultaneously with the dental work, but in no way connected with it. The dentist will feel much relieved when it can be clearly demonstrated that his work is not responsible for the inflammation and pain. Schamberg says: "It has become an invariable rule with me to take a radiograph of every chronic abscess before performing any operation, and occasionally I take a second or third radiograph to note the progress of the case."

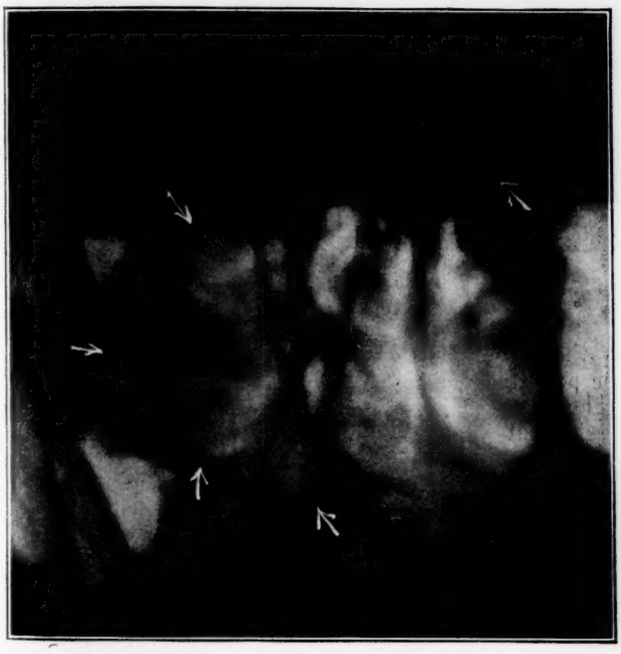

Fig. 1.—Pus in right antrum. See clear left antrum. Case of Drs. Gleason and Starr.

When men like Cryer, whose wide experience and skill in the use of the probe is recognized by all, make constant use of the rays as a diagnostic agent, its superiority over other methods can not be questioned.

The roentgenograph will make plain whether the root or only the alveolar process is involved, and consequently help to decide whether the abscess should be drained through the pulp canal or through the alveolus, and if through the alveolus whether a simple curettage would suffice or whether apical excision be necessary to eradicate the infection. Furthermore, the roentgenograph should show how much of the root should be removed. Dray says:

> Much untold suffering could be avoided, many guilty blunders obviated, many blessings bestowed on the dentist by the use, in the hands of the expert, of the *x*-rays. The dentist who fails to use this wonderful adjunct of modern dental diagnosis and therapeutic agency must go through life with a blunt or troubled conscience.

Lange asks:

> Would it be ultrascientific to suggest the aid of the skiagraph in all operations on the root canal? In the various manipulations on the root canal the dental surgeon is working more or less in the dark. In cleaning out such a root canal, owing to varying shapes and lengths of roots, it may be impossible to determine whether or not the apex of the root has been reached. By inserting a fine broach into the canal and skiagraphing the tooth with the broach in position this point may be cleared up. In drilling out a root canal for the insertion of a pin or post for anchorage, this same procedure will tell whether you are drilling in the right direction and whether deep enough or not.

Fig. 2.—Shows cause of pus in Figure 1. Abscess about root, with pericementitis.

In several cases in which the roots were curved, I have found that the drilling extended through the side of the tooth and into the alveolar process instead of to the tip of the root canal.

Exostoses of the roots seem to be rather frequent. They cause much suffering and often explain failures in removing roots in the process of extraction.

Whorls (dense areas of bone) have been found by Cryer to explain some of the obscure cases of neuralgia.

Pulp-stones, by no means rare, cause much suffering and may be demonstrated in the roentgenographs as shown in one of my slides.

UNERUPTED, IMPACTED, SUPERNUMERARY, AND ENTIRE ABSENCE OF TEETH

One of the most important uses of the rays is the detection of unerupted, impacted, supernumerary teeth and the absence of those that should normally exist. The development and eruption of the teeth can be followed from the very beginning, and if the rays are used early the orthodontist can surely correct more easily the deformities that occur. If one follows the development of a tooth from its very incipiency, one first detects the formation of the enamel cusps, then the crown; later the root of the complete tooth with its pulp canals.

Unerupted teeth sometimes assume such freakish positions that it seems unwise to wait and guess, when we

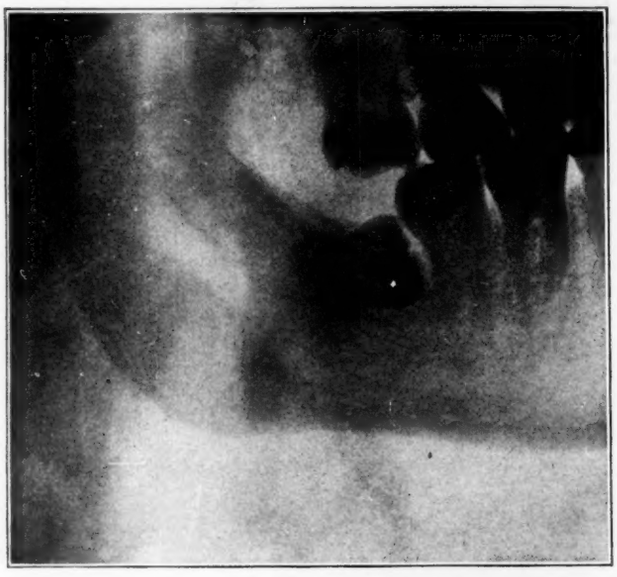

Fig. 3.—Impacted third molar. Dr. Dray's case.

have at hand a painless and accurate means of diagnosis. Much suffering and annoyance may thus be avoided.

Impacted teeth are rather common; the trouble affects especially the third molar, though any of the teeth may be affected. The tooth may even be inverted and be growing in the opposite direction to the normal position. These impactions usually cause great suffering and often the destruction of adjoining teeth, leading to abscess formation with surrounding inflammations, etc., which interfere with mastication and deglutition and lead to serious conditions. These impactions are often the cause of obstinate and persistent neuralgias.

All orthodontists agree that the deciduous teeth are often sacrificed too early, leading to undevelopment or later deformities of the jaws. On the other hand, a deciduous tooth often interferes with the eruption of the permanent, and causes much unnecessary suffering. What other accurate guide have we in the control and observation of erupting teeth?

THE MAXILLA AND THE ACCESSORY SINUSES

The affections of the maxilla and the accessory sinuses are generally brought to the attention of the general medical or dental practitioner. If he fails to realize the possibility of disease in these areas and fails to use the roentgenograph as an aid in diagnosis, much valuable time will be lost and much unnecessary suffering will result.

In the lower jaw we must consider especially fractures, necrosis, tumor formation, and cystic degeneration. The location of a fracture is indicated by a transparent line, usually jagged in outline. Its union is indicated by the gradual disappearance of this line and

Fig. 4.—Bone cyst. See inversion of erupting teeth. Dr. Schamberg's case.

by the formation of callus. Non-union is indicated by the persistence of and widening of this line and by the formation of sinuses, and often by the formation of excessive but unhealthy callus. The roentgenograph will thus aid materially in deciding on the line of treatment and especially determining whether the interdental splint should be used, or whether the case calls for the wiring procedure. If wiring be decided on the roentgenograph will indicate the best points for the drill holes. Not infrequently these fractures will be found to have been preceded by abscess formation at that location. The knowledge of the presence of an abscess will surely be important in deciding the line of treatment.

Fig. 5.—Curved incisor, showing hole drilled through the side of the tooth. Dr. Ickes' case.

Necrosis is indicated by a disturbance in the fine network of the cancellous structure of the bone, usually consisting in increased transparency due to destruction of the bony elements.

Tumors of the lower maxilla are shown by a destructive disturbance in the cancellous structure of the bone, but it is less definitely outlined than in necrosis and abscess formation, fading more gradually into the healthy bone, and is often associated with the formation of new tissue. Carcinoma seems to cause more destruction of bone and less formation of new tissue than sarcoma. Most of the tumors seem to

be sarcomata and the rays will assist in determining whether only the periosteum or the bone itself is involved. The extent of the disease can also be determined and thus material assistance be secured in outlining the treatment.

Cystic degeneration in the bone is comparatively rare, but it should be borne in mind in obscure cases and it can only be accurately diagnosed by means of the rays.

If the upper jaw is involved by necrosis or the formation of a tumor, its demonstration is more difficult than the same in the lower mandible. Affections of the antrum as well as of the other accessory sinuses leading to the accumulation of pus or tumor formation can be nicely demonstrated and often the cause can be shown by the use of the *x*-ray. It is well to know whether the pus in the antrum is due to a decayed tooth or not. The *x*-ray will also show at what point the antrum should be drained; the most dependent portion of the antrum can be determined and the best drainage obtained.

THERAPEUTIC APPLICATION OF THE RAYS

The application of the rays therapeutically has been less extensive, though there have been sufficient scattered reports of good results to justify its consideration in obstinate cases and when other methods have failed.

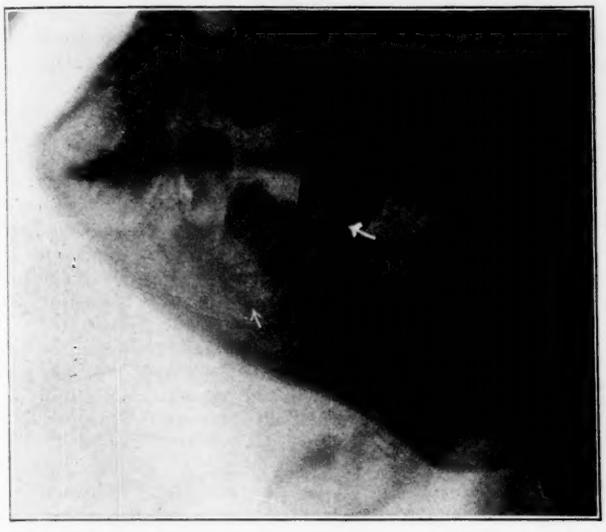

Fig. 6.—Showing pulp stone in crown, and abscesses at the root. Dr. Schamberg's case.

I have myself seen marvelous results in the treatment of sarcoma of the bones and sinuses of the face. I have seen pyorrhea of the antrum that resisted all other forms of treatment, including repeated curettement, get well under the influence of the rays. Obstinate cases of idiopathic neuralgia will sometimes yield quickly. I have seen good results in old and obstinate cases of pyorrhea alveolaris. Dr. Weston A. Price, of Cleveland, has made the best reports[3] on this subject.

CONCLUSIONS

1. There should be a more general use of this valuable diagnostic and therapeutic agent in dentistry.
2. It is without danger in the hands of an expert.
3. It is a painless, aseptic and accurate means of diagnosis.
4. All parts of the jaws can be shown on the plate. The finest details of the tooth structure and alveolar process can be best obtained by using a film within the mouth.

3. Cleveland Dental Society, Jan. 4, 1904.

5. This method of diagnosis should be used in obscure cases, especially in chronic abscesses, the examination of roots and pulp canal fillings, etc., of offending teeth with persistent non-yielding pathologic conditions.

Fig. 7.—Fracture of styloid process due to pressure by dentist back of the angle of the jaw. Dr. Laplace's case.

6. The rays are particularly useful in diagnosing unerupted and impacted teeth, root abscesses and alveolar abscesses, exostoses, tumors and necrosis and, last but not least, pulp stones.

Fig. 8.—Same case as Figure 7. Healthy side. Shows abnormally long styloid process.

Finally, I desire to express my appreciation of the courtesy of Drs. Cryer, Dray, Schamberg, Cameron, Warren, Faught, Mershon, Babcock, Cupid, Bernds and Gray and others in referring these cases.

1321 Spruce Street.

ABSTRACT OF DISCUSSION

DR. SIDNEY LANGE, Cincinnati: The picture of the pulp stone in the pulp chamber was of especial interest to me. I have seen a number of patients with so-called facial neuralgia (for want of a better term) who had gone from dental surgeon to rhinologist and back again without getting relief. In this class of cases the *x*-ray will often indicate the source of the trouble and in not an inconsiderable number I believe the cause will be found to be a pulp stone irritating the nerve endings. The aid which the *x*-ray lends will certainly be most grateful to these patients. Another method in *x*-ray diagnosis has served me in good stead and that is the tracing of sinuses and areas of necrosis by injecting a bismuth suspension and then skiagraphing. This method is especially valuable in outlining areas of necrosis between the inner and outer plates of the alveolar processes. The picture of the fractured styloid process was a revelation to me. Attention is now being directed to injuries of this bony process and the value of the *x*-ray in this connection is inestimable.

I recall an unusually interesting case of a type not touched on by Dr. Pfahler in his demonstration. The case was one of intra-alveolar fracture of the root of the tooth from a blow on the crown. The patient complained of soreness and pain on pressure yet the tooth was apparently sound and firm. The *x*-ray revealed a transverse fracture of the root not far from its apex.

DR. ARTHUR R. DRAY, Philadelphia: Recently a well-known dentist of Philadelphia, talking on the subject of *x*-ray in dentistry, said something as follows: "I have been considering the use of the *x*-ray in dentistry for several years, and have come to the conclusion after an exhaustive study, that it is useless." The truth is that the *x*-ray is very valuable in dentistry, as Dr. Pfahler has most conclusively shown. First, in detection of undeveloped teeth; then in detection of impacted teeth with abscesses. The pulp stone may be detected by the *x*-ray—the neuralgic symptoms produced by other conditions are so similar to those produced by pulp stones that only the *x*-ray can determine the true cause when it is pulp stone that is the factor. The results of *x*-ray treatment in pyorrhea have been remarkable. Antral troubles, exostoses, erosion of the roots, areas of necrosis, cysts, different tumors, fractures of the jaw and the roots of teeth, can all be wonderfully cleared up by the use of the *x*-ray. In some cases—sarcomata, carcinomata, fractures, etc.—we are absolutely dependent on the *x*-ray; and last, but not least, in detecting perforation of roots and lost portions of the instruments left behind by the absent-minded dentist. We need the *x*-ray to help us to progress with modern science.

DR. CHARLES K. TETER, Cleveland: I can not understand how any dentist of to-day could state that the *x*-ray is of no use in dentistry. It would be a good thing for many of the dentists if they could have the *x*-ray thrown on their work after they are through with it, especially in treating root canals. Not long ago I heard a dentist say there was not a root he could not fill to the apex. We arranged an experiment where the roots were placed in plaster and given to this dentist to fill, which was an easier proposition than it would have been in the mouth. I am not in a position to give the absolute number of teeth that were filled, but less than a fourth of the number were filled to the apex. If they could all have the *x*-ray thrown on their work afterward they would know the exact conditions. Another point: the value of the *x*-ray depends to a large extent on the manner in which the pictures are interpreted; it takes a trained man to interpret them correctly. The average man can not do it.

DR. ARTHUR ZENTLER, New York City: Dr. William B. Dunning read a paper some time ago before the Institute of Stomatology in New York, describing a new method of filling root canals with a combination of paraform, paraffin and zinc oxid. This method, which undoubtedly is known to a good many of you, consists in melting this solid mass at the orifice of the root canals, introducing it by capillary attraction up to the apex. The question is raised whether capillary attraction will carry the melted substance to the extreme end of the roots, in which case after solidifying it would act as a permanent, good root canal filling. There is no other way of proving conclusively that it reaches the end of the root canal except by the radiograph, which in this, as in other cases mentioned by the essayist and other speakers, remains the decisive test.

DR. STEWART L. MCCURDY, Pittsburg: I have been impressed with the value of the *x*-ray as a method of making diagnosis in every branch of surgery for a great many years, and have been using it constantly. The question of *x*-ray interpretation referred to by Dr. Teter is important. It would be impossible for a man who did not know the normal anatomy of the face to interpret these pictures properly. It is only by constant and repeated readings, with the normal skull present, that these interpretations can be made correctly. The method of focusing the *x*-ray at various angles is of value in giving us a view of the entire field. The constant presentation of the subject by the men who believe in it and a campaign of education among the dentists is the only thing that will bring the *x*-ray to its proper plane of usefulness.

DR. ARTHUR R. DRAY, Philadelphia: There is one phase of the subject I would like to ask Dr. Pfahler to lay stress on, viz.: the all-important fact that it depends on the skill of the one who manipulates the *x*-ray apparatus whether we will discard it or accept it. This was brought to my attention forcibly some time ago. A patient was brought to me for treatment who had been told by his medical adviser that he was suffering from a malignant growth of the inferior maxillary bone. I requested an *x*-ray examination to be made by Dr. Pfahler. It showed what I had suspected, an encysted unerupted tooth. The patient was about 70 years of age and gave a history of the teeth having been removed years previously, thus throwing the medical man off his guard.

I found out months afterward in talking with this patient that an *x*-ray picture had been taken of this same case, before Dr. Pfahler examined him, which did not show anything of the encysted tooth so clearly demonstrated in the second picture.

DR. G. E. PFAHLER, Philadelphia: The only safe way is to have the work done by a man who is thoroughly competent. I think that poor work in this line is worse than none at all. The dentist and the *x*-ray man should work together. The dentist should give all the information he can as to the probable location of the lesion. After the picture has been taken, I always try to have a conference with the dentist, either by sending in my report with the plate and discussing it afterward, or by meeting and conferring personally. While many negatives are clear in diagnosis and could be read by any one, others are obscure and could only be safely interpreted by conference.

RECONSTRUCTION OF THE BILE DUCTS *

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NEW YORK

This paper is an outgrowth from one branch of work done for Dr. J. W. D. Maury (Associate in charge of Surgical Laboratory) in his search for the cause of death in high intestinal obstruction.

The available literature fails to reveal a method for the construction of an intra-abdominal sinus for biliary drainage. This procedure depends on the use of a rubber tube, at one end of which a rubber sponge, or an ordinary surgical sponge, is securely attached (Fig. 1). The tube should be approximately the size of the common bile duct, and the diameter of the sponge should not be greater than one-half the diameter of the duodenal lumen. The length of the tube depends on the length of the biliary passage to be reconstructed.

The operative technic followed in this experimental work is roughly as follows: The common bile duct is

* Read before the Surgical Section of the Academy of Medicine, New York City, and before the Surgical Association of the Alumni of the College of Physicians and Surgeons.

exposed, ligated and cut across just above the ligature. Two plain catgut No. 1 sutures are introduced in the opposite edges of the gaping duct, and in the rubber tube, in such a manner that when the sutures are tied down, the knots will be on opposite surfaces of the duct, and the tube drawn within the lumen of the duct a distance of approximately 1 cm. (Fig. 2). The tube

Fig. 1.—Types of tubes and sponges used in reconstructing bile ducts.

is then applied to the anterior surface of the duodenum (Fig. 4), and at approximately every inch is sutured to the duodenal wall with fine catgut. At a point about opposite the ampulla of Vater, an incision is made in the duodenum, just large enough to allow the insertion of the sponge and attached tube into the lumen of the intestine. The sponge is shoved down inside the intestine, and the opening in the duodenum is sufficiently repaired so that the cut edges snugly encircle the tube. At this point—where the tube penetrates the intestinal

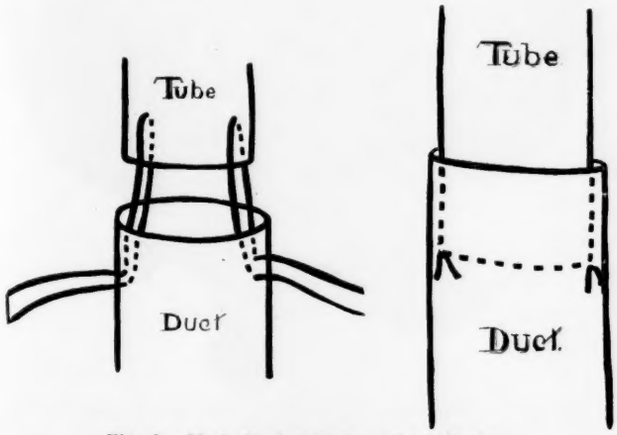

Fig. 2.—Method of suturing tube into duct.

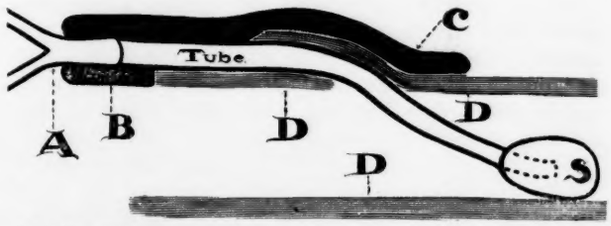

Fig. 3.—Diagram showing introduction of tube and sponge into duodenum. A, hepatic duct; B, gastrohepatic omentum; C, great omentum; D, duodenal walls; S, sponge.

wall—a No. 1 plain catgut suture is inserted, taking a good bite of duodenum and a small bite of the tube, so as not to encroach on the lumen of the tube. This suture does two things—it prevents the peristaltic pull on the sponge from tearing the two duct sutures free, and it minimizes biliary colic, as has been demonstrated in dogs. The duodenal walls are then sutured over the tube so that for about 2 cm. before the tube penetrates into the intestine, it runs in a canal made by overlapped duodenum. The great omentum is then drawn up, and a suitable area selected with which to cover the exposed portion of the tube. This area is traumatized by slightly drawing a dry sponge over it a few times, and similar friction is applied to the duodenum and gastro-hepatic omentum on either side of the tube. The omentum is then placed so as to cover the tube and extend beyond it a centimeter or two in all directions, and is held in position by several fine catgut sutures (Fig. 5).

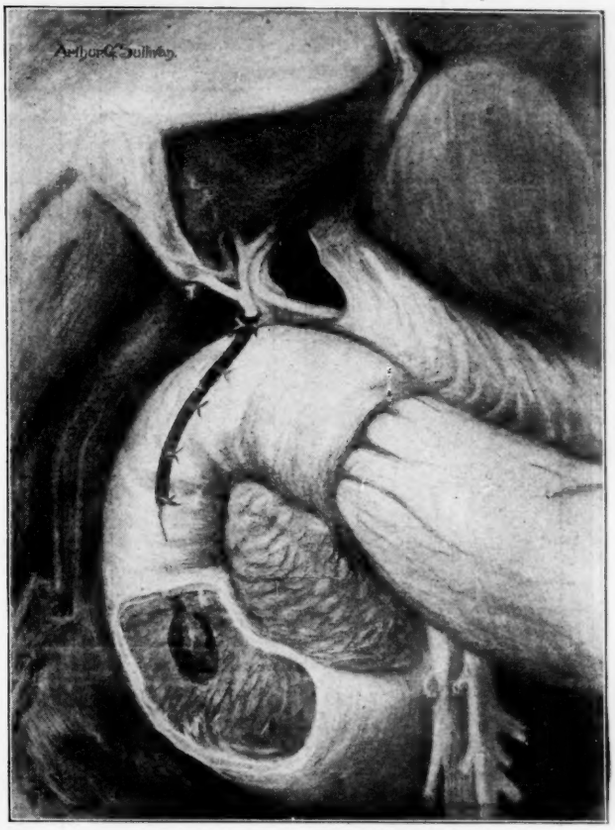

Fig. 4.—Tube sutured to duodenal walls; adapted from one of W. J. Mayo's drawings.

Eight dogs have been operated on in this manner, and the following facts observed:

Dog 1 was operated on eleven weeks ago, and a plain tube, without sponge attached, was used. Fifteen days later his abdomen was again opened, and the tube drawn out through a buttonhole incision in the duodenum. The ease with which the tube slipped out suggested that the peristaltic action of the intestine could well supplant the second operative procedures.

Dog 2 was operated on nine weeks ago, and a tube with a rubber sponge tipped end was inserted. Owing to my anxiety to have the peristalsis fulfil anticipation, I used very fine plain catgut throughout (No. 00), with the result that tube and sponge were passed sixty hours later. No harm resulted, however.

Dog 3 was operated on seven weeks ago. The rubbber sponge was passed two days later, it having torn from the tube because of faulty ligation. Consequently the tube itself was removed several days afterward, through very small incisions in the abdominal wall and duodenum, as in Dog 1.

Dog 4 had a tube and rubber sponge inserted in him five weeks ago, and passed both intact seven days later.

It occurred to me that a rubber sponge might not be procurable in case of emergency, and consequently I took a sur-

gical sponge, stitched it so that it would not unfold, sutured it to a rubber tube, and introduced it into the next subject.

Dog 5 had the surgical sponge and rubber tube inserted, and eight days later tube and sponge were passed.

Dogs 6 and 7 were operated on three weeks ago, and *Dog 8* two weeks ago. Cholecystectomy was done in all three, and hepaticus was connected with the duodenum, the usual technic being employed. Dog 6 passed his tube on the eighth day, Dog 7 on the sixth day and Dog 8 was killed by ether a few days after his operation to secure a specimen (Fig. 6), which shows the tube *in situ*, connecting hepaticus and duodenum, with the gall bladder removed.

Another specimen (Fig. 7) was taken from Dog 5 two days after he passed the gauze sponge and tube. From the latter specimen several microscopic sections were taken and the pathologist reported that the mucosa had grown upward from the duodenum, and downward from the duct, into the new formed tube. At its middle part the walls are composed of peritoneal

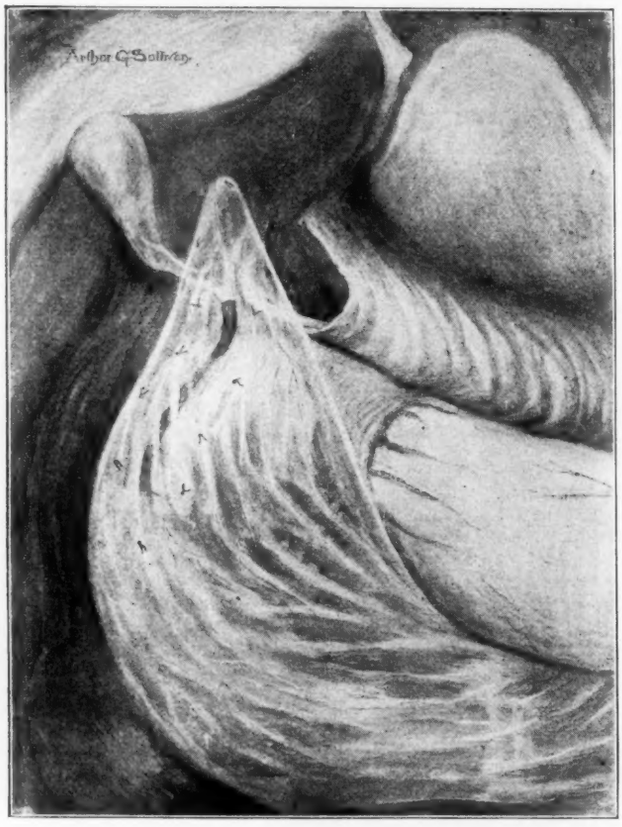

Fig. 5.—Great omentum drawn up and sutured to form anterior wall of reconstructed passage.

tissue. There is absolutely no evidence of inflammatory deposit. It will be noted, as shown in Figure 3, that the newformed tube is made up of peritoneal tissue in its entire extent.

Nothing which could be called unusual postoperative care was given these animals. Their regular diet was allowed them within thirty hours, and yet all, save those from which specimens were removed, are delivering bile in normal amounts, to say nothing of being alive, well, and in the best of spirits. Careful watch was kept of all feces and no sign of acholia appeared, nor was there a symptom of leakage or peritonitis.

On analyzing the constituent steps in this work, it is at once apparent that the operation is merely a combination of more or less accepted technical details. The drainage of the hepatic duct by rubber tube, set forth by Abbe, is recognized. Witzel's method of gastrostomy is roughly similar to my method of implanting the tube in the duodenum. Kehr has successfully used gastric wall to bridge over a deficiency in the wall of the common duct; and the use of omental grafts to cover such apertures is a fairly common proceeding.

For the benefit of those who might feel inclined to perform this experiment on dogs, I wish to emphasize the necessary steps.

1. It is essential that the tube be placed within the duct, and not in the reverse order.

2. The duodenal wall must be folded over the tube for a distance of 2 cm. before it plunges into the lumen of the intestine.

3. The restraining stitch, which temporarily prevents traction on the upper portion of the tube, should be put in.

4. The tissues forming the walls of the tube must be lightly traumatized.

5. The sponge should not occupy more than half the lumen of the intestine and especially when a gauze sponge is used.

6. In case cholecystectomy is done, the gall bladder fossa should be obliterated by stitching the lobes of the liver together, thus avoiding hemorrhage, which is difficult to control in dogs.

Fig. 6.—Specimen from Dog 8. A, omentum cut away to expose tube; B, duodenal lumen; C, gall bladder.

In the last two operations, the sponge which was inserted was compressed as much as possible, by taking several turns of No. 3 plain catgut around it. My experience has been that catgut in the lumen of the dog's duodenum is disintegrated about three times as rapidly as that placed in the body tissues. So by using the heavier gut, with which to compress the sponge, one very greatly diminishes the peristaltic tug on the tube for a few days after the operation, until finally the sponge breaks its bonds, expands, and is then ready to do active work at approximately the same time that the catgut holding the tube in the duct is absorbed. The advantage of having the tube undisturbed the first few days is obvious. I have one dog which was operated on 104 days ago. At that time I put a tube in him with the idea of keeping it *in situ* permanently. He is in the best of health and no signs of discomfort from the tube are apparent.

This is the "reconstruction of the bile ducts," an operation which I believe involves a new surgical principle. If the dogs survive a month or two longer without untoward symptoms and present the same, or more favorable pathological findings, then as now, I advocate this technic in persons requiring artificial connection between the biliary passages and the intestine.

If a single hepatic duct, or the common hepatic duct, needs repair, a small tube, properly fenestrated so that it will not occlude the biliary tributaries, or the duct of Wirsung, might be passed from within the duodenum through the ampulla of Vater, up the common duct to

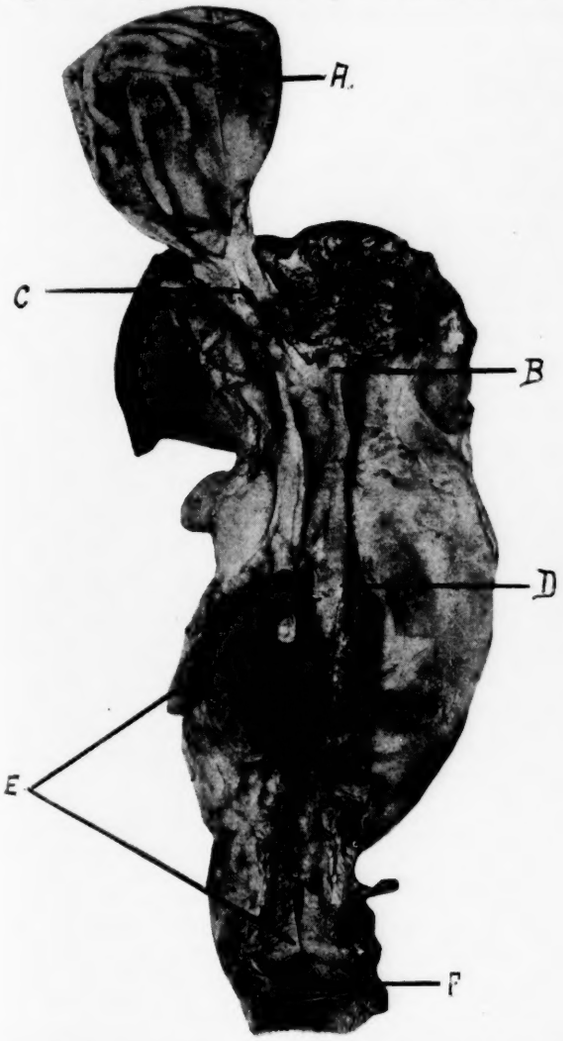

Fig. 7.—Specimen from Dog 5.—The aperture in the floor of the reconstructed duct, just as it enters the duodenum, is the result of a section taken for microscopic examination. A, interior of gall bladder; B, hepaticus; C, cysticus; D, end of common bile duct; E, reconstructed duct; F, duodenal lumen.

the point where reconstruction is desired. This would more closely approximate normal conditions.

SUMMARY

1. There is no technic for duct reconstruction in general use.
2. In the operation described the reconstructed canal is made of formed tissues, rather than inflammatory deposits.
3. Both ends are protected by mucosa.
4. There was no mortality in eight cases.

I am much indebted to Drs. H. H. Janeway and J. W. D. Maury for their kind aid.

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EXPERIENCE IN THE EXPRESSION OF CATARACTS IN THE CAPSULE BY THE SMITH METHOD *

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When Major Smith's article[1] on the extraction of cataract within the capsule by external manipulation appeared I became interested in the possibilities of the method and gave it such trial as I was capable of at that time in twenty-two cases. These were hastily brought together and not selected. The results were thought to be not satisfactory at the time and were so reported,[2] but further observation has shown that a very fair percentage of the patients did well. In the beginning it should be stated that I have only included in these later statistics cases of operation in which I have supervised the after-treatment and determined the refraction.

Of all the operations which have been proposed for the removal of cataract, no one of them and no combination of them offers such a complete and satisfactory disposition of the capsule, which is the beginning, middle and end of most of our after-troubles, as extraction within the capsule.[3] This is so evident that if any added risk is incurred in doing the operation it seems more than offset by what is gained in the comparative freedom from the complications which are liable to follow the regular operation. Regarding these complications, Knapp long ago called attention to the fact that iridectomy alone was a comparatively safe procedure, but that opening the capsule and extracting the lens added other elements of danger to the traumatism of the iridectomy, and changed the condition to one of danger to the eye in a certain proportion of cases. These elements of danger consisted in the mechanical irritation of the lens débris to the cut and torn surface of the iris.[4] Hess and Schirmer regard this irritation as due to infection.[5] "It seems more than probable that the inflammation is due to the chemically altered lens substance which acts as an irritant, but whether it is trauma, infection or chemical irritation, it is generally acknowledged that the postoperative dangers—iritis, cyclitis or iridocyclitis—are in some manner attributable to the cortical débris."[6] If the true explanation of the causes of these postoperative inflammations is to be found in either of these theories, such sequelæ should not follow delivery in the capsule, and experience shows that delivery in the capsule furnishes a high degree of immunity from them. The combined operation, in the hands of the best operators of this and other countries in 1,032 operations, according to Ring, furnished a loss of vitreous in 7.23 per cent., iritis in 13.15 per cent., incarceration of iris in 4.32 per cent., and discission was required in 26.61 per cent.[7] According to Smith's statistics three years ago, in 2,616 operations he only had 6.8 per cent. of loss of vitreous and 0.3 per cent. of iritis in 2,494 operations when the lens came

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Arch. Ophth., June, 1906.
2. Ophthalmology, January, 1907.
3. In connection with this statement the following articles will be found of interest: Capsular Complications After Cataract Operations, Brit. Med. Jour., 1905, p. 433; Knapp: The Lens Capsule in the Operation of Cataract, Tr. Am. Acad. Ophth. and Oto-Laryngol., 1905, p. 4.
4. Arch. Ophth., xii, 98.
5. Wooten, in Claiborne's Cataract Symposium, p. 163-164.
6. Stricken: Innutrition of the Lens in its Relation to Cataract Formation, Ann. Ophth., viii, No. 4.
7. Med. Rec., Feb. 23, 1905.

away whole, but when the capsule was opened intentionally or ruptured in delivery, and had to be left behind, iritis was observed in 5 per cent. of the cases.[8] Dr. Arnold Knapp, after a visit to Major Smith's clinic at Jullundur in 1906,[9] practically confirmed these statistics. We must, therefore, accept these percentages and seek their explanation in the marvelous skill of the operator and the comparatively early age at which cataracts develop in India. Cases of cataract, I understand, develop in persons between five and ten years younger in India than in this country. The degenerative changes of the vitreous are more marked in the ten years between sixty and seventy than at any prior period, and the condition of the vitreous is the essential all-important element which influences statistics as to its loss, the shape of the pupil, iris entanglements, etc., in the operation.

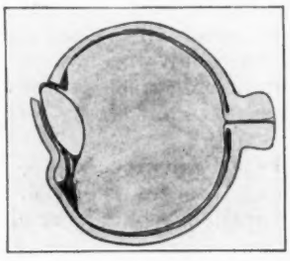

Fig. 1.

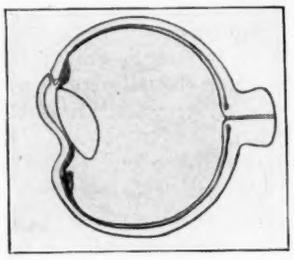

Fig. 2.

Fig. 1.—These figures are a schematic representation of the accouchement of the lens in its capsule. Fig. 1 shows the indentation of the cornea and zonula below and the slight protrusion of the lens above.

Fig. 2.—Rupture of the zonula below and lens dropping back.

Attention is called to the fact that the average age of my patients has been high (67.7 years). Largely because of this I think my percentage of vitreous loss has been high also. In making these later operations I had the advantage of having seen Smith perform it; I have learned by experience that the percentage of success depends more on the attainment of a high degree of skill, technical knowledge and the imitative faculty than on any skill acquired in making the regular operation. Theoretical considerations avail little or nothing in considering its place among cataract operations. The operation can be learned only at the elbow of one who is capable of demonstrating it. Without having this advantage and experience in the after-treatment of cases, no one is capable of passing judgment on the merits or demerits of the operation.

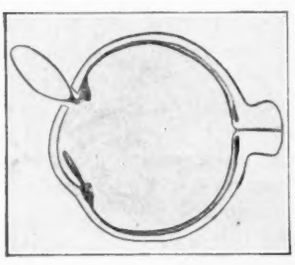

Fig. 5.

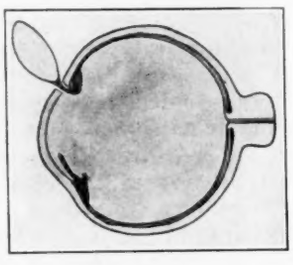

Fig. 6.

Fig. 5.—Lens almost delivered.

Fig. 6.—Lens is wholly out but is held by some of the superior fibers of the zonula. These fibers are torn by a slight lateral rocking motion of the lens produced by the use of the hook. The lens is now delivered in its capsule.

8. Arch. Ophth., xxxiv, 601.
9. Arch. Ophth., January, 1908.

In July of last year, through the courtesy of Dr. Arnold Knapp, I saw Major Smith make three operations in New York City. So large a crowd was present that my view of the operations was not satisfactory, but I afterward spent several hours with him listening to descriptions of his method and seeing him demonstrate it until I thought I had a fair understanding of his technic. Major Smith regards the operation as in process of evolution. I quote from a late letter: "When once we have convinced ourselves that we are right, and have the doggedness to go ahead, our ultimate success is assured." Again he says: "You can not teach a man to do this operation by mere demonstration. He must do the operation before the teacher sufficiently often to acquire confidence in himself; and, further, a trained assistant who can properly expose the eye and at the same time take off all pressure is scarcely less important to the success of the operation than the operator himself." In this connection his address[10] before the American Ophthalmological Society at New London, Conn., last July, should be read. After describing the operation, he says:

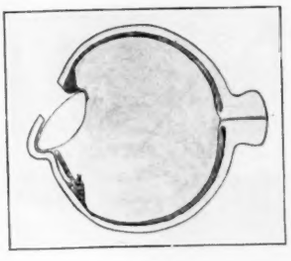

Fig. 3.

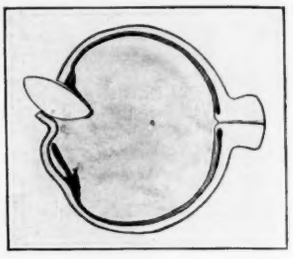

Fig. 4.

Fig. 3.—Lens is beginning to turn. The hook alone is used now and follows up the lens.

Fig. 4.—The lens has turned and is partially delivered.

> The treatment of immature cataracts which I have practiced extensively, and which I am an ardent advocate of, which I regard as the operation of the future, which will leave senile cataract a much rarer condition than at present, is extraction of the lens in the capsule, a procedure to which immature cataracts are admirably suited. I hold that, if for no other reason than for the treatment of immature cataract, every ophthalmic surgeon should be familiar with the art of extracting the cataractous lens in its capsule.

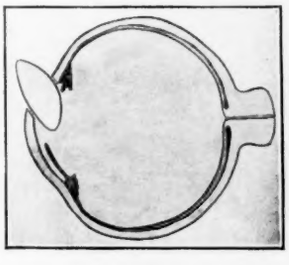

Fig. 7.

Fig. 7.—Shows the delivery of the lens in the capsule when the superior fibers of the zonula give way at the same time that the inferior fibers do. This occurs in 15 to 20 per cent. of all cases. It is in these cases that the loss of vitreous is most frequent, and that the spoon is sometimes inserted in the wound above to aid in the delivery.

I submit with diffidence that three years ago I called attention to these same points in the treatment of immature cataract,[11] and further experience has confirmed my belief that the method is superior to any other method of extracting such cataracts, or to any method of artificial ripening. It is in the treatment of immature cataract that I think the Smith operation will receive its first recognition, because, if I understand the opinion of the profession on this point, it is not favorable to extracting unripe cataracts by regular methods. Major Smith has

10. Tr. Am. Ophthal. Soc., 1908; Arch. Ophth., November, 1908.
11. Ophthalmology, January, 1907.

told me that just this line of reasoning and observation with capsulotomy methods and secondary operations and accidental deliveries in the capsule are what led him to seek a method of delivering all kinds of cataracts, which would at the same time remove the capsule with the lens, because he believes such disposition of it to be good surgery.

While writers from the time of Pagenstecher to the present have considered hypermature cataracts specially suited for removal in the capsule, my experience has been that these are usually the most difficult to express. The vitreous is often fluid, the strength of the zonula, while usually frail, can not be foretold, and the milky cortex will be forced by the pressure to occupy one end of the capsular bag and the small disc-like nucleus will float to the other. I have seen this hour-glass appearance several times. These are the cases which require careful handling, since they furnish a high percentage of loss of vitreous, but the same would be true if extractions were done by regular methods. In this connection we should remember that cataractous eyes are always diseased eyes, as Risley and others have so well shown. While it is my desire to discuss the operation from my personal experience, I recognize the difficulty of placing my experience, which is limited, but, on the whole, *is favorable to the Smith operation,* in opposition to the theoretical considerations which have influenced men against delivery in the capsule, and for comparison with the vast number of reports of regular operations and published statistics by innumerable observers there are no extensive statistics of delivery in the capsule available. The fact that possibly but one operation in the capsule to five thousand or more by capsulotomy methods has been made, ought not, *per se,* to prejudice men against accepting a new procedure which, to say the least, is theoretically desirable, because from the beginning the desire of the profession has been for a method which would remove the capsule with the lens. All have recognized the undesirability of leaving it behind and the surgical incompleteness of all operations which do so. Witness the early efforts of Richter and Beer, the later efforts of Sperino and de Wecker, and the still later method of Pagenstecher and Macnamara to accomplish this end. Loss of vitreous, as a rule, in my experience, has been more the fault of the patient than of the operation. This statement does not help the matter, but it puts the blame where it usually belongs.

The fear of retinal detachment from loss of vitreous seems to be the *bête noir* of all men with whom I have discussed the operation, yet this danger is not supported by the available statistics, and it really seems to be very small. Pagenstecher more than forty years ago, in 600 operations, saw only one case of detachment of the retina, and that in a highly myopic eye with chorioiditis. Wetzel and Beer long ago stated that they had not seen harm resulting from a loss of one-third of the vitreous (by volume). Smith has stated that in his experience the same is true. Captain Lister of the Indian Medical Service, a former pupil of Major Smith's, has examined 100 cases of from one to seven years after loss of vitreous. He read a report at the Bombay Medical Congress in February; his conclusions have not yet been published, but Smith has stated that Lister did not find a case of detachment of the retina among them. It must, however, be admitted in this connection that loss of vitreous is looked on by the majority of men in this country with apprehension. Whether they overestimated its importance or not, time and observation alone can tell. I myself have seen only two cases in which vision following the operation merely equaled perception of light, which could be attributed to detachment of the retina after the loss of about one-half of the vitreous. In these cases there was delayed healing, gaping of the wound and an ingrowth of corneal epithelium, and reduction in size of the cornea in healing, so that no view of the fundus could be had. I have not been certain as to the cause of loss of vision in these cases because P. L. remained. Several times after a slight loss of vitreous I have smoothed out the iris and have seen many cases in which it would be impossible to tell that the lens had been removed in the capsule. On the other hand, in a few instances I have bandaged up an eye with a keyhole pupil and have found the wound open, vitreous presenting and the iris entangled in the angles at the first dressing. The same condition is observed after the regular operations. These conditions are usually observed in nervous and restless patients with high blood pressure.

Loss of vitreous should not be the sole measure by which the operation is judged; if it is as serious as many think, the danger is yet to be proved. The statistics we have do not prove the danger to be great, and Smith's statistics show that with select cases it is possible to reduce it to the percentage of the regular operation or even below it. Surely comparative freedom from inflammation and high-class visual results count for more than slight loss.

Perhaps of more importance to the future integrity of the eye than loss of vitreous is the fact that no discission is necessary. It requires no argument to show that the risk of an operation increases in proportion to the number of times a knife-needle or scissors are passed into the eye. This is also one of the essential points on which those favorable to the Smith operation based their contention, *that it is both safer and more complete than the regular operation,* even if the loss of vitreous is greater for the average operator, *which must be conceded.* This liability to accident seems more than offset by the comparative infrequency of the reactions that are liable to follow a discission. Having had a large experience with extraction and after-treatment with capsulotomy methods, I have not seen such smooth and uncomplicated healing, all things being equal, in any other series of cases; there can be no question as to the correctness of this observation, and it is in harmony with the experience of all who are familiar with delivery within the capsule. On this point I do not wish to be misunderstood. I have encountered certain reactions, but they have not been of an inflammatory character (except in the few cases shown in the statistics), but have been connected with the healing of the section and have usually been associated with ruptures of the capsule, incarceration of iris, or cystoid healing, and blood pressure above 160 mm. Hg. in nervous and restless patients. Only two cases of iritis sufficient to cause pain and require treatment have been observed. Both followed rupture of the capsule. A few times I have observed the intrusion of a bead of vitreous into the section at the first dressing, or even later when none had presented at the time of operation. It has not been sufficient as a rule to abscise it because more will take its place, but I have always secured firm union by repeatedly tapping the chamber below, and the same practice has been successful in cystoid healing after excising the cyst.

My experience with the operation has been largely with patients of advanced years in my clinic at the National Military Home, at St. Elizabeth's Hospital, this city (and in private practice) in whom the conditions of the vitreous and fundus are frequently unfavorable to high-class results.

I pass rapidly over the corneal incision, which should be an enlarged de Wecker without a corneal flap. I have tried making a large iridectomy, and have found it to have some advantages in the delivery of the lens, but, on the other hand, as the tendency is in the direction of too large a pupil, I have made a small iridectomy as a rule. The patient can look down during the completion of the section and the iridectomy, but during the expression of the lens must look straight ahead or slightly upward, *never downward.* I have seen more loss of vitreous from the patient violating this injunction than from any other cause.

Smith's late manipulation with the end of the spatula and strabismus hook, over the lower third of the lens, by which it is dislocated, has been the most difficult step to imitate. I am conscious that failure to make this manipulation properly has been the weak point in my technic, and has materially increased my percentage of vitreous loss. I have dispensed entirely with the speculum while making the section and the iridectomy and have had my assistants use the Fisher and later the Noyes lid-elevator instead. The assistant changes to the large hook after the iridectomy, and lifts the upper lid as Smith has directed. The operator should make light or moderate pressure to and fro over the lower third of the lens with the tip of the strabismus hook. At this stage the operator will see the lower border of the lens mapped out through the cornea and iris advanced slightly, then with moderate pressure with the small end of the spatula applied edgewise across the lower sclerocorneal border the lens will advance still farther toward the incision, the zonula will give way, and the top of the lens will often tilt slightly backward. If the pressure is continued around the lower border of the lens, and the tip of the hook inserted under or behind it, the intraocular pressure will aid in causing the lens, which is now only anchored above, to describe a half-circle. The wound will gape, and the lens will emerge bottom edge upward, leaving only a small band of zonula to be loosened. This must be done slowly and with the utmost gentleness by drawing it back and forth through the incision. Otherwise the capsule will rupture and recede into the eye. It is still possible to catch it with forceps if the operator be dextrous. Vitreous is seldom lost when the lens is delivered in this way. In more than half of these cases the lens has been delivered thus. In other cases the zonula will rupture first at one of the angles of the section; then if the vitreous is fluid some of it is easily lost. It is at this point that familiarity with what may happen and skill and technic in meeting the emergency obviates some mishaps.

Before leaving these steps in operation I wish to call attention to the perfect control the assistant has over the orbicularis with the large strabismus hook under the upper lid. Slight traction with it will break the power of the muscle by bending it at a sharp angle. With a small piece of gauze on the face of his thumb the assistant pulls down the lower lid. With a trained assistant it is practically impossible for the patient to squeeze out normal vitreous. Unfortunately not all patients have normal vitreous and it is easy for the patient to lose fluid vitreous not only by attempts at squeezing but by suddenly and forcibly looking down. So far as I am able to learn, the particular design of this large hook, and the use to which it is put, the control of the lower lid in the way described and the use of the smaller hook for delivering the lens, must be credited to Major Smith. To his credit also, I think, belong the manipulation in emergencies with the double-ended spatula, one end of which is passed through the vitreous presenting behind the lens. It should not be passed deeper than the posterior pole of the lens, while pressure through the cornea below will cause the lens in its capsule to glide up this inclined plane to its exit. In my judgment these three instruments are the best additions that have been made to the armamentarium of the ophthalmic surgeon in many years. Since I have been making more pressure with the tip of the spatula and done less rubbing over the lower third of the lens the number of cases of striped and latticed keratitis have markedly diminished, and I have not seen either remain and lower vision in any of these cases. I never use bichlorid solution in cataract operations; therefore it could not be responsible for the keratitis. There are no rules governing the amount of pressure to be used in delivering the lens. Each case is a law unto itself. Three points should be remembered: 1. The pressure should never be excessive, but steady and equal. 2. The cornea should be kept moist. 3. There should be no pressure or rubbing over the center of the cornea.

It is in connection with these manipulations that men become prejudiced against the operation when they see it performed for the first time, because they overestimate the force of the steady pressure required to rupture the zonula and dislocate the lens, and consider the manipulations rough and unscientific. I have satisfied several who have visited my clinics that the degree of pressure used is not great, but is much more apparent than real. In other words, they have unlearned some of their misconceptions regarding this important step of the operation.

The lens having been delivered, the iris, if prolapsed, should be returned and smoothed out, but the danger of loss of vitreous should not be forgotten in doing this. Usually it is best to bandage the eye as soon as possible. Intrusion of fluid vitreous into the wound has not influenced the healing materially. The toilet should be made according to the taste of the operator. I prefer a half-round dry cotton patch between layers of gauze laid on the closed lids of each eye. The irregularities are filled out with small pledgets of picked cotton which are held in place by pieces of adhesive straps. I prefer a flannel bandage for the class of patients on whom most of my operations have been performed—old soldiers, many of them feeble in mind and body, bad subjects, as a rule, for any operation. The eye should not be open for three or four days unless the patient complains of pain, which is so exceedingly rare that freedom from discomfort or pain can be regarded as one of the striking characteristics of the method. On removing the dressing freedom from discharge and the normal appearance of the eyelid are usually noticeable. As a rule, the wound will be found closed and the chamber established at this first dressing; if not closed the usual conditions will be found present. The appearance of the clear black pupil is very gratifying and the distinct tracery and pattern of the iris, and its response to atropin, if used, shows its freedom from inflammation. The conjunctiva usually takes on a blush

of irritation or congestion. Rarely will the deep redness and chemosis of inflammation be seen. The amount of photophobia and lachrymation will vary with the condition of the wound. I have seen only two cases of genuine iritis in these seventy-five cases. In each the capsule had ruptured and only two scissors operations have been made for up-drawn pupils in these same cases. Striped and latticed keratitis have caused more uneasiness and required more treatment than any other complication, yet, as already stated, I have not seen either remain and lower vision in any of these cases, and the same can be said of disturbance in the epithelial layer of the cornea from the pressure.

As a rule vision is not high at first, because of ker-

TABLE OF RESULTS OF SMITH OPERATION IN 75 CASES

No.	Age.	Eye.	Condition of Cataract.	B. P.	Lens Delivered.	Capsule.	Vitreous Loss.	Iris.	Chamber Formed.	Vision.	Remarks.
1	73	L.	Im.	140/100	.....	.....	.....	.....	3d day.	20/20	
2	71	R.	M.	190	.....	.....	.....	.....	14th d..	20/30	Presenting vitreous; tenth day passed knife through wound; firm union.
3	61	L.	M.	190	.....	.....	.....	.....	3d day.	20/20	
4	60	L.	M.	210/130	.....	Ruptured, retained.	.....	Iritis.	14th d..	20/20	Discission.
5	75	R.	Hm.	160/120	.....	.....	.....	.....	3d day.	20/20	
6	68	R.	Im.	190/120	.....	.....	.....	.....	4th d..	20/30	
7	49	R.	M.	120/100	.....	.....	.....	.....	2d day.	20/15	
8	76	R.	M.	200/130	.....	.....	.....	.....	3d day.	20/20	Wound opened after 1 week. T = + 1: chamber formed next day.
9	60	L.	M.	190/130	Spatula..	.....	Slight	.....	4th d..	20/70	Myopia and chorioiditis.
10	65	L.	Hm.	165/130	.....	Ruptured..	.....	.....	3d day.	20/50	Some capsular remains;
11	70	L.	M.	190/140	.....	.....	.....	.....	14th d..	20/30	Delayed healing; vitreous protruded 3d day; seven punctures made; firm union.
12	75	R.	Im.	210/160	.....	.....	.....	.....	2d day.	20/70	Feeble minded; delusions; vision partly estimated.
13	58	R.	Im.	180/140	.....	.....	Slight.....	.....	3d day.	20/50	Incipient chorioiditis.
14	56	R.	Im.	145/110	.....	.....	.....	.....	5th d..	20/30	
15	67	L.	M.	180/130	.....	.....	.....	.....	3d day.	20/20	
16	60	R.	Hm.	190/130	Spatula..	.....	Slight.....	.....	4th d..	20/70	Myopia and chorioiditis.
17	45	R.	M.	140/100	.....	.....	.....	.....	2d day.	20/30	
18	61	R.	M.	190	.....	.....	.....	.....	3d day.	20/20	
19	76	L.	M.	200/130	.....	.....	.....	.....	3d day.	20/20	
20	50	R.	Im.	136	.....	.....	.....	.....	5th d..	20/15	
21	72	L.	M.	115/75	.....	.....	.....	.....	4th d..	20/ 0	
22	76	L.	Im.	250/175	.....	.....	.....	.....	4th d..	20/40	Slight keratitis cleared up; incipient chorioido-retinitis.
23	71	R.	Im.	140/90	.....	.....	.....	.....	3d day.	20/20	
24	63	L.	M.	190/115	.....	.....	Slight.....	.....	12th d.	20/20	Delayed healing; no cause apparent.
25	62	L.	M.	170/130	.....	.....	.....	.....	5th d..	20/20	
26	62	R.	Im.	165/130	.....	.....	.....	.....	5th d..	20/20	
27	65	R.	M.	180/130	.....	.....	Slight.....	.....	3d day.	20/20	Small hemorrhage into anterior chamber.
28	75	L.	M.	.....	.....	.....	.....	.....	2d day.	20/20	
29	64	L.	M.	145/105	.....	.....	.....	.....	4th d..	20/20	
30	70	R.	M.	150/110	.....	.....	.....	.....	2d day.	20/20	
31	62	L.	M.	150/110	.....	.....	.....	.....	4th d..	20/20	
32	68	L.	M.	130/90	.....	Ruptured, retained.	.....	Iritis.....	3d day.	20/50	Oct. 20, '08, iridotomy; Jan. 20, '09, iridotomy.
33	64	L.	M.	160/120	.....	.....	Considerable..	Incarcerated..	14th d.	20/30	Pterygium, cystoid healing, abscised; healed.
34	87	R.	M.	180/140	Spatula..	.....	Marked	.....	3d day.	20/50	Feeble mentality; vision partly estimated.
35	77	R.	M.	140/90	.....	.....	.....	.....	3d day.	20/30	
36	77	L.	M.	230/150	.....	.....	.....	.....	3d day.	20/20	
37	70	R.	M.	170/130	.....	.....	.....	.....	4th d..	20/40	Feeble mentality (complained of pain during convalescence.)
38	70	L	M.	170/130	.....	.....	.....	Incarcerated..	14th d.	20/50	Feeble mentality; vision partly estimated.
39	65	R.	M.	160/110	.....	.....	.....	.....	4th d..	20/30	
40	68	L.	M.	140/110	.....	.....	.....	.....	4th d..	20/40	
41	76	L.	M.	150/100	.....	.....	.....	.....	2d day.	20/30	Delayed healing; a bead of vitreous abscised on fifth day. Prompt healing.
42	76	R.	Im.	150/100	.....	.....	.....	.....	5th d..	20/50	
43	77	R.	M.	160/110	.....	.....	.....	.....	4th d..	20/30	
44	73	L.	M.	22 /160	.....	.....	.....	.....	3d day.	20/20	
45	73	R.	M.	220/160	Spatula..	.....	Excessive.....	.....	.....	P. L.	Restless; unruly; fluid vitreous.
46	77	R.	M.	230/150	.....	.....	.....	.....	4th d..	20/20	
47	87	L.	M.	180/140	.....	.....	.....	Incarcerated..	17th d.	20/30	Feeble mentality.
48	64	R.	M.	160/120	.....	.....	Slight.....	.....	4th d..	20/30	
49	71	R.	M.	200/140	.....	.....	.....	.....	5th d..	20/20	
50	66	L.	M.	150/110	.....	.....	Slight.....	.....	7th d.	20/20	
51	75	R.	M.	150/110	.....	.....	.....	.....	4th d..	20/20	
52	73	L.	M.	160/120	.....	.....	.....	Incarcerated..	9th d.	20/30	
53	69	L.	M.	150/120	Spatula..	.....	.....	.....	3d day	20/20	
54	74	R.	M.	170/120	.....	.....	.....	.....	2d day.	20/20	
55	66	L.	M.	210/140	.....	.....	.....	.....	7th d..	20/20	
56	66	R.	Im.	210/140	.....	.....	.....	.....	2d day.	20/20	
57	86	R.	M.	170/130	.....	Ruptured..	.....	.....	7th d..	20/50	Feeble-minded.
58	74	L.	M.	210/150	.....	.....	.....	.....	3d day.	20/50	
59	63	R.	M.	220/140	.....	.....	.....	.....	7th d..	20/20	
60	61	L.	Im.	185/110	Spatula..	.....	.....	.....	7th d..	20/30	
61	67	L.	M.	160/120	.....	.....	.....	.....	14th d.	20/40	
62	72	R.	M.	190/140	.....	.....	.....	.....	3d day.	20/30	
63	72	L.	Im.	190/140	.....	.....	.....	.....	3d day.	20/30	
64	67	R.	M.	200/150	Spatula..	.....	Slight.....	.....	3d day.	20/30	Slight keratitis cleared; very unruly
65	63	R.	M.	150/120	.....	.....	.....	.....	5th d..	20/30	
66	53	L.	Im.	140/100	.....	.....	.....	.....	10th day	20/15	Striped keratitis. Cleared up.
67	81	R.	Im.	.....	.....	.....	.....	.....	2d day.	20/70	
68	73	L.	Im.	200/160	.....	.....	.....	.....	4th d..	20/30	Slight keratitis cleared up.
69	67	R.	M.	150/120	.....	.....	Slight.....	.....	3d day.	20/20	Unruly; vitreous escape after delivery.
70	76	R.	M.	160/120	.....	.....	.....	.....	3d day.	20/40	
71	70	L.	Hm.	140/120	.....	.....	.....	.....	3d day.	20/70	Incipient macular chorioiditis.
72	74	R.	.....	.....	.....	.....	.....	.....	3d day.	20/50	
73	70	R.	M.	.....	.....	.....	.....	.....	3d day.	.....	
74	88	R.	M.	.....	.....	.....	.....	.....	.....	.....	Infection: panophthalmitis (chronic cyclitis.)
75	66	L.	M.	150/110	.....	.....	½	.....	7th d..	P. L.	Very unruly; globe collapsed; salt solution injected; invagination corneal flap; probable hard detachment of retina.

atitis in some cases, but more often from disturbance in the anterior layers of the vitreous which resemble miniature ridges and valleys, running perpendicularly. These have not the appearance of striped keratitis. Pagenstecher noted this condition.[12] They seem to smooth down gradually and vision reaches its best in from one to two months. The degree of astigmatism, which is usually from 2 to 4 D., has not varied much with the healing, when primary union has taken place.

For the purpose of comparing the results obtained with the combined method of extraction, I have appended the statistics of the last 75 operations in the Soldiers' Home Hospital, with the statistics of 75 cases in which operation was done by the Smith method; 52 of them in the Soldiers' Home Hospital and 23 in St. Elizabeth's Hospital. The conditions have been as uniform as possible. The average age of the patients operated on by the regular method was 69.76, and for the Smith operation 67.7 years. The number of patients operated on by each method is too small to draw any definite conclusions from, yet they are believed to have sufficient value to justify comparing them.

Expression within the capsule offers the following advantages:

1. A cataract can be removed at any stage.
2. No discission is ever necessary.
3. There is comparative freedom from postoperative inflammations.
4. There are no capsule entanglements; prompt healing is the rule.
5. The method is especially adapted to institutional work; one operation does all.
6. No ripening methods need be tried.
7. The result is better average vision, which does not change with time, if the fundus conditions remain favorable.

The disadvantages of the method are the following:

1. The only important one is greater liability to loss of vitreous for the average operator.
2. From a cosmetic point of view the wide updrawn pupil (if it results) mars the appearance of the eye, while it may not be a disadvantage to vision.
3. And lastly, a skilled assistant is always necessary in performing the operation.

It is not my desire to be considered a champion of the Smith operation until I have seen more of the ultimate results which follow it, among white people, living under different climatic and dietetic conditions than average Indians, but having emphasized its strong points, and admitted its weak points as I have seen them, I can not avoid the conclusion that it is a long step toward the ideal operation which we are all seeking. Perhaps it will not be so in the hands of every one, but in the hands of the few who will learn to do it well I believe it has a promising future. The statistics which follow have been compiled by my hospital associate, Dr. J. W. Millette. It is a pleasure to acknowledge the thorough and careful manner with which it has been done.

These statistics do not include all the operations I have performed. Cases have not been selected, but I have excluded all cases in which I have not given the after-treatment and done the testing for vision and also those cases which from the condition of the cornea, vitreous and fundus, were not proper ones from a visual point of view. Two patients whose cases were considered proper had excessive loss of vitreous and vision only equal to P.L., which are fairly chargeable to the operation; one has dense vitreous opacities, probably from hemorrhage, the other lost about half of the vitreous. He has an up-drawn pupil, and no view of the fundus can be had. I am not certain as to the cause of the loss of vision in either case, and one other case was lost from infection.

SUMMARY OF VISUAL RESULTS

Total Number. Cases.	Vision.	With Loss of Vitreous. Cases.	Vision.
3	20/15	4	20/20
30	20/20	2	20/30
18	20/30	3	20/50
4	20/40	2	20/70
9	20/50	2	P. L.
5	20/70	13	
2	P. L.		
1	0	With Rupture of Capsule.	
3	No record	1	20/20
		3	20/50
75		4	

Average vision for 72 better than 20/30 about 20/27, to be exact.

SUMMARY OF ACCIDENTS AND BLOOD PRESSURE

Vitreous loss; healing delayed more than five days.

Cases.	B. P.	Cases.	B. P.
3	150	2	150
2	160	2	160
3	180	2	170
3	190	1	180
1	200	1	185
1	220	3	190
		2	210
13	Average B. P. 175.4	1	230
		14	Average B. P. 174.6

For comparison, with results obtained by the Smith operation, I submit the following statistics from my last seventy-five regular operations compiled by my assistant, Dr. W. C. Cook, National Military Home:

Cases.	Vision.		
10	20/20	5	20/200
16	20/30	1	Fingers at 6 feet
17	20/40	1	P. L.
10	20/50	1	0
5	20/60		
2	20/70	75	Average vision 20/40
7	20/100		

One patient had slight loss of vitreous; 2 had slight attacks of glaucoma; 20 had a degree of iritis requiring treatment; 35 eyes required discission; 9 patients whose eyes needed discission refused it; 1 eye was lost by iridopyelitis after a secondary operation.

12. Ann. d'ocul., September-October, 1871.

THE EXPRESSION OF CATARACT IN ITS CAPSULE

WITH REPORT OF FORTY OPERATIONS *

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Delivery of the lens in its capsule has been an occasional accidental accompaniment of the cataract operation experienced by most operators ever since the beginning of cataract extraction, by reason of unwonted pressure on the globe by the operator or by the patient squeezing his lids (Case 10), during which more or less vitreous has been lost. It may also be occasioned knowingly, though unwillingly, by reason of rupture of the zonula after incision of the cornea when the operator has passed a spoon behind the lens lifting it out, or when he has premeditatedly removed a dislocated lens by the same means. Over-ripe and Morgagnian cataracts have occasionally likewise been removed by much

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

the same procedure. Those of us who have been operating for a score of years will doubtless remember many such experiences and our surprise at the unusually good visual results obtained even in some instances in which considerable vitreous was lost. The deliberate routine extraction of all senile cataracts in their capsules was first introduced by A. Pagenstecher (September, 1865) at the Heidelberg Ophthalmological Congress and has been followed since that time by him and his brother, H. Pagenstecher[1] in a large proportion of their cataract operations.

Nach dem Drittelbogenschitt nach oben mit Bindehautlappen wird iridectomiert und hierauf die Linse, entweder durch das blosse Druckmanöver oder mit dem flachen Löffel der bloss als gleitfläche dient, entbunden.[2]

The lens is expelled after incision of about one-third of the circumference made with a conjunctival flap and an upward iridectomy, either by means of gentle pressure or with the flat spoon acting purely as a gliding surface.

The above description of Pagenstecher's operation on cataract in the unopened capsule is as short and accurate as has yet been given. Examine these words closely, the various essays of Pagenstecher, digest them, then follow up by reading the essays of subsequent writers as Cassiani,[3] Gradenigo,[4] Gayet,[5] Landesberg,[6] and other foreign authors, Roosa,[7] Andrew,[8] Henry Smith,[9] Oxley,[10] Maynard,[11] Herbert,[12] Cheney[13] and Greene,[14] then come back to the original of Pagenstecher and give credit for the devising of this operation in all its details where it belongs, not to later operators, even though of astounding skill, sufficiency and experience.

The recent revival from the antipodes has awakened new interest in this operation, largely occasioned by the astounding number of cases reported by Major Smith, of Jullundur, India, who has had an experience of about 20,000 operations, about 17,000 being in the capsule, among them many incipient cataracts.[9] While this vast experience has authoritatively established expression as successfully applied to the removal of senile cataract, yet the method should not be denominated "Smith's operation," even though he claims "the details of the operation are my own"[9] and has been accorded these claims in some quarters. In common with Major Herbert, I fail to see any substantial reason for such claims. "The operation is merely ordinary combined extraction, with the omission of one step—the opening of the capsule" (Herbert).[12] Smith insists that men must see it done in order to learn the method completely. By examination of the literature we "find no detail which has not been practiced earlier by others." "Those who have seen Smith operate do not appear to have benefited much, judging from their results" (Herbert).[12] I have not yet had the opportunity of seeing this master hand at work, but his writings certainly do not give us anything beyond the "omission of detail" (Herbert).[12]

I find nothing original except the use of the large squint hook for delivery of the lens, a minor and useful adjunct, but one which I have myself used since 1888, and probably many others have used a similar instrument for this purpose. A. and H. Pagenstecher have used a curved spoon since 1865. The large old-fashioned rounded strabismus hook is a perfectly adapted instrument for this purpose—its convexity indents the cornea properly and its concavity follows up the cataract until delivery through the open wound is completed, with much less force than by finger pressure through the lid, with more dexterity than by use of the Pagenstecher spoon, and with much less danger of bursting the hyaloid membrane and consequent prolapse of vitreous.

Until I got the Smith hook I used a crochet hook which I devised in 1889 (but never reported) for ocular muscle operations. Last year (1908) I devised a large hook with a blunt crochet end. The latter is useful just as the lens is being delivered, to lift it out of the wound. Smith's new spoon is very like the old spoon of Pagenstecher; comparison of the two will not show any appreciable difference. In common with others I believed for many years that the insertion of the spoon behind the lens or into the vitreous back of the hyaloid membrane was the distinguishing mark of the Pagenstecher operation; but on referring to the original author and in correspondence with German writers I now fully agree with Elschnig (editor of Czermak's *Augenärztlichen Operationen*) in his letter to me of Feb. 1, 1909, in which he says: "Pagenstecher's operation is quite the same as Smith's."

Pagenstecher seems to have been the first to express the lens by external pressure (1871[1]) and Terson (1872[15]) and Wolkow (1894[16]) next report such procedure. Smith does not write until 1900.[9] Pagenstecher used his spoon to press the posterior lip of the wound back and to slide the lens thereupon. Smith[9] now passes the spoon behind the edge of the lens to assist its birth or extrusion, passing it into the vitreous on occasion of a hard delivery. So did A. and H. Pagenstecher and so did all of us.

The modifications of the Pagenstecher operation have varied from bizarre changes in place of section (Macnamara, outward, 1871[17]), introduction of spoon, hook

1. Pagenstecher, H.: Extraction de la cataracte sans ouverture de la capsule, Ann. d'ocul., 1871, lxvi, 126; Zur pathologischen Anatomie des Glaskörpers, Zentralbl. f. d. med. Wissensch., 1875, p. 708; Die Extraktion des grauen Staars in der geschlossenen Kapsel, Wiesbaden, 1877; Ueber Extraktion der Katarakte in der geschlossenen Kapsel, nebst Bericht über 117 Fälle, Arch. f. Augenh., 1881, x, 166; Ueber Staarextraktion mit ohne Entfernung der Kapsel, Arch. f. Ophth., 1888, xxxiv, 145; Ueber die Kataraktextraktion in der geschlossenen Kapsel, Ber. d. VII internat. Ophth.-Kong. zu Heidelberg, 1888, 506.

2. Czermak, edited by Elschnig, A.: Augenärtzlichen Operationen, 1908, ii, 524 et seq.

3. Cassiani, Ingoni: Dell' estrazione capsulo-lenticolare della cataratta, Ann. di ottal. 1897, p. 460.

4. Gradenigo: Estrazione di cataratta capsulo-lenticolare per-scleram, Ann. di ottal., e lavori d. clin. ocul. di Napoli, 1902, xxxi, 702; De l'extraction de la cataracte dans la capsule par la sclérotique après zonulotomie, Ann. d'ocul., 1903, cxxx, 25.

5. Gayet: Rapport sur l'opération de la cataracte, Ber. d. VII. internat. ophth. Kong. zu Heidelberg, 1888, p. 108.

6. Landesberg: Ber. über 123 Staaroperationen, Arch. f. Ophth., 1878, xxiv, 59.

7. Roosa: Remarks on the Extraction of the Crystalline Lens in its Capsule, Tr. Am. Jour. Ophth., 1885, ii.

8. Andrew: The Operation of Senile Cataract in its Capsule, Brit. Med. Jour., January, 1883, p. 41.

9. Smith, Henry: Indian Med. Gaz., June, 1900; Extraction of Cataract in the Capsule, Brit. Med. Jour., Sept. 26, 1903; Extraction of Cataract in the Capsule, Arch. Ophth., 1905, xxxiv, No. 6; Arch. of Ophth., March and May, 1906; Treatment of Immature Cataract, Arch. Ophth., November, 1908.

10. Oxley: Cataract Extraction in the Capsule, Indian Med. Gaz., December, 1905.

11. Maynard: Cataract Expression in the Capsule (Smith Operation), Ophth. Rev., 1906, p. 225; Manual of Ophthalmic Operations, 1908, pp. 106 et seq.

12. Herbert: Extraction of the Lens in the Capsule, Ophthalmoscope, 1906, p. 113; Text-Book of Cataract Extraction, 1908.

13. Cheney: Extraction of Cataract in the Capsule: Report of Ten Cases, Ophthalmology, October, 1906, iii, No. 1.

14. Greene: Extraction of the Cataract within the Capsule, Ophthalmology, January, 1907, iii, No. 2; Visual Results After Cataract Extraction, Ohio State Med. Jour., Sept. 15, 1906; Further Experience with the Smith-Indian Operation in the Extraction of Cataracts, Ophth. Rec., October, 1908; Tr. Sec. on Ophth. A. M. A., 1909.

15. Terson: De l'extraction du cristallin et de sa capsule, Rev. méd. de Toulouse, 1872, Nos. 3 and 4; Ann. d'ocul., lxvii, p. 313.

16. Wolkow: Ist die Kapsulotomie bei der Extraktion des Altersstaars nötige? Vestnik oftalmol., 1894, xi, 366.

17. Macnamara: A Manual of the Diseases of the Eye, 1871, ed. 11.

or loop (Caspar, 1878[18] Higgens 1888[19]), tearing of zonula (Andrew, 1883[8]), dislocation of lens into anterior chamber by sclerotic puncture, Canstatt (1870[20]), Roosa (1885[7]) tore the zonule by partly dislocating the lens with the Graefe knife, Gradenigo (1895[4]) used a zonulotome, Wolkow (1894[16]) used two spoons for pressure and counter-pressure, etc. Mulroney, at Amritsar, India, began in 1890 to make a downward section without iridectomy, and this procedure has been adopted by Smith[9] (with upward corneal section), "who now has many imitators."[12]

We will now take up the operation itself according to my experience, leaving other phases and details to our confrère, Dr. Greene.

I do not deem the purely corneal section acceptable, for this is followed by slow healing, iridic prolapse (Herbert[12]), distorted pupils (Greene, 1906[14]) and excessive astigmatism, neither is the operation without iridectomy, on account of iridic prolapse. My experience has shown the 2/5 sclerocorneal section with conjunctival flap, as where this is made delayed union is unknown (Maynard[11]), combined with a very small iridectomy and extraction of the lens, *i. e.*, the regular operation less a capsulotomy, in immature and hypermature cataracts, is the only all-round satisfactory operation. The ordinary run of mature cataracts may be as well operated on with less risk in the average hands by the generally adopted combined flap extraction with capsulotomy; cataract in children and traumatic cataracts by discission.

The "absence of details," *i. e.*, the least handling of the eye and the fewest instruments possible, is the characteristic of this operation and what with the *tactus eruditus* makes it successful in the hands of Smith, Greene and others; while in some other hands—notably the critics of the method—especially those of India—"do not appear to have benefited much, judging from their results."[12] It is no operation for a beginner, neither is it for the average operator.

A stop speculum should not be used on account of the ever-present danger of vitreal prolapse. The lifting of the upper lid by a squint hook seems crude. I use the lidholder of William Fisher, of Chicago, and have the patient's upper lid—the only one of moment—under full control, and thus lose vitreous in not more than 5 per cent. of cases either with or without capsulotomy. The eye is fixed by catch forceps, the knife is entered (the only instrument entering the eye), and a corneoscleral section with a conjunctival flap is made. A very small iridectomy is made, the section of the iris only embracing the pupillary margin and edge of the sphincter muscle, by pressing the ends of iris forceps on the cornea over the upper part of the pupil, when the iris will usually prolapse, the edge being seized by the forceps, the iridectomy is completed by a single cut of the scissors. The bend of a large hook is then pressed moderately, slowly and continuously on the cornea at the lower edge of the lens, that tilted backward, the pressure gradually relaxing as the upper edge of the lens enters the wound, the body of the lens is lifted up by the pressure of the hook, which follows it in its delivery; the flat spoon of Pagenstecher or Smith may be used to assist the lens to slide out of the eye by offering an inclined and smooth plane for it to glide on. Seldom is the spoon entered into the eyeball; forceps are occasionally necessary to seize the lens when impacted between the lips of the wound; and the act is completed by the crochet end of the hook catching the lens, on its delivery, rotating it out of the wound, the conjunctival flap and the iris stroked back into place, the lids closed and a light bandage applied. This is a brief description of the method I have adopted and adapted. My expression cases are comparatively few, but compare very favorably, and in fact the results are to my mind better than those of about 1,000 regular extractions performed by me within the last twenty years.

My cases, grouped under dates of the expression operations, are as follows:

CASE 1.—Oct. 3, 1904: Mrs. S., aged 58. Immature cataracts R. & L. Preliminary iridectomy and direct trituration with Boettmann's spoon by me October, 1903, on L. E.; no ripening. Extraction of cataract with aid of Pagenstecher's spoon which entered the eye, no loss of vitreous. V. + 9.00 ⌒ 1.00, 180° = 6/vi.

CASE 2.—Oct. 15, 1905: Same as Case 1. I had done preliminary iridectomy without trituration on this eye in October, 1903. Normal expression operation on mature cataract of R. E. V. + 9.00 ⌒ + 1.50, 165° = 6/vi.

CASE 3.—March 12, 1906: Mr. F. D., aged 65. R. immature, L. mature. Small iridectomy, normal expression in capsule of L. V. + 12.00 ⌒ + 2.00, 90° = 6/xii. See also (12).

CASE 4.—March 9, 1907: Mrs. Z., aged 61. Hypermature black cataract, small iridectomy, expression with slight loss of vitreous, corneoconjunctival stitch after. V. + 10.00 ⌒ + 3.00, 180° = 6/xxiv.

CASE 5.—March 18, 1907: Mrs. S., aged 59. Mature cataract, small iridectomy normal expression. V. + 10.00 = 6/xii.

CASE 6.—March 23, 1907: Mrs. E. J. J., aged 60. Mature black cataract, small iridectomy, expression normal until lens was pinched in wound when a portion of the anterior capsule tore off, sticking in wound, removed by forceps without entering the eye, a slight iritis developed; the hyaloid membrane apparently participating in the opacifying process, as several months afterward a fine membranous opacity was observable on focal illumination. I have not seen this occurrence before or since. V. + 10.00 ⌒ + 150, 15° = 6/vi; but on development of the hyaloid opacity was reduced to 6/viii with correction.

CASE 7.—April 10, 1907: C. C., aged 48. Mature cataract, small iridectomy, normal expression. V. 10 days later with 10.00 about 6/xxiv. I did not have the opportunity of prescribing lenses or observing the vision later as he did not return after leaving the hospital.

CASE 8.—June 19, 1907: B. O., aged 65. Mature cataract, normal expression except capsule ruptured, lens removed by sliding on spoon and capsule pulled out of wound with forceps without entering the eye. V. + 10.00 ⌒ + 2.50, 180° 6/viii.

CASE 9.—Nov. 6, 1907: R. W., aged 45. Immature cataracts, small iridectomy, normal expression, corneal incision (the typical Indian operation), very slow healing of wound, iritis, four weeks in hospital. High astigmia followed, although visual acuity was very good. V. + 11.00 ⌒ + 4.00, 135° = 6/xviii.

CASE 10.—Nov. 11, 1907: Mrs. A. S. Hypermature cataracts with tremulous irides and synchysis vitrei. There being fair perception and iris reaction in the left, I attempted ordinary combined extraction, corneoconjunctival stitch (Kalt) placed before incision, but lens popped out in the capsule with considerable loss of vitreous. Result for a few months was V. = movements of hands and large objects. Further degeneration set in so that in May, 1908, eye was blind. (See Case 19).

CASE 11.—Nov. 12, 1907: Mrs. S., aged 70. Hypermature cataract, small iridectomy, capsule ruptured and was not en-

18. Caspar: Ueber Extraktion der kataraktosen Linse in geschlossener Kapsel, Inaug. Diss., Berlin, 1878.
19. Higgens: Extraction of Immature Cataract, Lancet, London, 1888, No. 19.
20. Canstatt: Briefl. Mittellung betreffend eine neue Idee sur operative Heilung des grauen Staars, Klin. Monatsbl. f. Augenh., 1870, pp. 131-133.

tirely removed from eye on account of rupture of hyaloid with slight loss of vitreous, caused by attempt at removal by iris forceps entering the eye, conjunctival stitch. Four weeks in hospital with iritis. V. two months afterwards + 12.00 = 6/xxxvi.

CASE 12.—Dec. 13, 1907: Patient in Case 3 returned on account of satisfactory result on L. E.; V. then being 6/viii with old correction, increased to 6/vi + 2 with decreased cylinder. Normal expression, immature cataract, small iridectomy. V. + 12.00 ⌒ + 1.00, 90° = 6/viii.

CASE 13.—Jan. 6, 1908: C. C., aged 40. Morgagnian cataract, normal expression, small iridectomy, lens aided in delivery by forceps as it became impacted into wound, no entrance of forceps. V. good. Refraction not recorded.

CASE 14.—Jan. 29, 1908: C. W., aged 69. Immature cataracts both eyes. V. 6/lx and 3/lx. L. E., corneal incision, small iridectomy, normal expression except that lens came out very slowly and seemingly took considerable pressure in delivery. Striped keratitis for two weeks. Very high immediate corneal astigmia (6.00, 180°). V. + 11.00 ⌒ + 5.50, 180° = 6/xxxvi. Astigmia reduced in May, 1908, to 3.00, 180°.

CASE 15.—Feb. 21, 1908: E. B., aged 58. Immature cataract, rather large iridectomy, expression followed by small bead of vitreous, conjunctival stitch. V. + 10.00 = 6/xii.

CASE 16.—March 21, 1908: O. P. H., aged 75. Robust health, two years blind with mature cataracts. R. E. chronic conjunctivitis and dacryocystitis. L. E. apparently normal, no pus germs on microscopic examination, three days' bichlorid of mercury treatment to eye and Seiler's solution in nose. Small iridectomy normal expression, brown cataract. Corneal astigmia 1.50, 180° V. + 10.00 = 6/xxiv. Increased in May, 1908, to + 11.00 = 6/xii. (See Case 18).

CASE 17.—May 5, 1908: Mrs. S., aged 64. Mature cataract, normal expression with rather large and uneven iridectomy. V. + 11.00 ⌒ + 1.50, 15° = 6/viii.

CASE 18.—May 21, 1908: Patient in Case 16. April 1, 1908, I excised the lacrimal sac according to Meller's[21] method securing union by first intention and kept him under antiseptic treatment with bichlorid of mercury solutions locally until May 22, 1908, when I made normal expression of the right cataract with small iridectomy. V. + 10.00 = 6/xxiv.

CASE 19.—May 21, 1908: Patient 10 returned with L. E. blind from degeneration, and as a last resort I made expressive operation on the R. E., which only had poor perception and projection, Morgagnian cataract, synchysis vitrei, having no complications and to my surprise getting 6/lx vision with + 10.00, but a few months later vision further deteriorated and the end results are unknown.

CASE 20.—June 5, 1908: Mr. S., aged 43. Morgagnian cataract, normal expression, small iridectomy. V. + 10.00 = 6/lx.

CASE 21.—June 19, 1908: Mrs. H. W., aged 61. R. mature L. immature cataracts, normal expression with small iridectomy R. except that capsule ruptured within the eye and some remained. Opacity cleared up under dionin. V. + 11.00 = 6/xxiv. (See also Case 28.)

CASE 22.—June 20, 1908: Mrs. M., aged 60. R. E. blind from previous iridocyclitis following attempted extraction of cataract by another operator. L. E. poor perception and projection. L. E. Morgagnian cataract expressed aided by forceps which entered the eye, much loss of fluid vitreous. Cataract with black nucleus. No result as eye went on to iridocyclitis.

CASE 23.—July 16, 1908: M. O., aged 63. Immature cataract, expression with small iridectomy, capsule ruptured before delivery, extracted with forceps entering the anterior chamber, small bead of vitreous extruded and was cut off, conjunctival stitch. V. + 10.00 ⌒ + 1.75, 180° = 6/viii.

CASE 24.—July 21, 1908: N. O., aged 69, had an attempted extraction done by another surgeon in L. E. with result of incarceration of iris and partially dislocated immature cataractous lens with resultant vision of fingers at 2.00 M. As the vision of the R. E. was less than the L. E. through the lenticular opacity I attempted expression with iridectomy, but the capsule ruptured and vitreous escaped, necessitating entrance of the spoon and delivery of the lens, conjunctival stitch. Patient had postoperative mania occasioned by fear of not regaining vision, owing to his previous experience and from the fact that his brother was totally blind after an unsuccessful cataract operation by the same operator on his only remaining eye, the other being injured and blinded by an accident. Nov. 6, 1908, I made a discission of pupillary membranes securing a clear pupil with normal looking fundus; but patient declared and persisted in the statement that he could not see, becoming very childish, so he was taken home and the end-results are unknown to me.

CASE 25.—July 30, 1908: Patient in Case 23 returned and I made normal expression of immature cataract with small iridectomy on left eye. V. + 10.00 ⌒ + 2.00, 180° = 6/vi.

CASE 26.—Aug. 3, 1908: Mrs. M. S., aged 51. Immature cataract, normal expression with small iridectomy. V. + 10.00 ⌒ + 1.00, 180° = 6/xxx. As the other eye has yet good sight she prefers to go without this correction.

CASE 27.—Aug. 6, 1908: Mr. F., aged 54. Immature cataract, normal expression with small iridectomy. V. + 12.00 ⌒ + 2.00, 15° = 6/xxxvi.

CASE 28.—Sept. 2, 1908: Patient in Case 21. Expression L. with small iridectomy; fluid vitreous escaped, spoon entered eye, conjunctival stitch, hyphema, dionin. Oct. 22, 1908, discission. V. + 12.00 = 6/xxiv.

CASE 29.—Sept. 18, 1908: J. R. W., aged 80. Mature cataract both eyes, very smooth normal expression with small iridectomy R. E. Clear black pupil and counting of fingers immediately after operation. Very nervous patient; two days later had postoperative mania, got his fingers under the bandage despite attention of special nurse, infected eye which was lost through panophthalmitis.

CASES 30 and 31.—Nov. 21, 1908: H. B., aged 57. Five years before this date I had extracted an immature cataract from his right eye, finding the zonula weak; the lens came out with the capsule. V. + 10.00 = 6/vi. Nov. 10, 1908, I attempted operation, but on completing sclerocorneal incision found that a bead of vitreous protruded into the anterior chamber, closed up the eye and November 21 made new incision with iridectomy; perfectly normal expression. V. + 10.00 ⌒ + 1.00, 180° = 6/viii.

CASES 32 to 37.—In addition to the above I have made six expression operations at my public clinic, the case histories of which are not complete nor at present accessible. In one of them there was loss of vitreous, in two rupture of the capsule but all recovered with useful vision.

I append three more recent case histories which apply to this subject, although they can not be classed as expression operations, in two of them the lens being removed in its capsule by the aid of the wire loop, in one of which detachment of the retina followed later, and in the other owing to the corneal incision a high degree of astigmia with delayed union followed the operation. In the other the interest centers on the failure of expression, followed later by successful combined extraction.

CASE 38.—May, 1897: J. M. C., aged 50. A diabetic and myope of — 4.00 D. submitted to a flap extraction by me in the right eye. On account of rupture of the zonule and loss of vitreous I removed the lens by the wire loop, ten days later, V. with + 8.00 = 6/vii. Gradual loss of sight followed, and when seen a year later detachment of the retina and optic nerve atrophy was found.

CASE 39.—May 2, 1908: Patient in Case 38. I made typical flap extraction with iridectomy on the left eye after attempting expression but had to do a cystotomy; the lens capsule, however, was extracted with forceps. V. + 10.00 ⌒ + 2.00, 90° = 6/xxiv.

CASE 40.—September, 1908: I operated at a clinic on a man of about 60 in whom an attempt by another operator at extraction of cataract had been made but the lens had not been removed. Here I found a cataract with posterior synechiæ. Ordinary attempts at extraction of the lens after the incision

21. Meller: Ophthalmic Surgery, 1908, p. 1 et seq.

TABLE ILLUSTRATING FORTY OPERATIONS OF EXPRESSION OF CATARACT IN ITS CAPSULE.

No. of Cases.	Type of Cataract.					Visual Acuity.			Complications in Healing.						Gen'l Comps.	Vitreous.		Capsule.		Inst. Enter'g Eye.		Incision.	
	Mature.	Immature.	Hypermature.	Morgagnian.	Complicated.	Good Results. Vision 6/vi to 6/1x.	Poor Results. V = Objects.	Failures.	Infections.	Iridocyclitis.	Iritis.	Striped Keratitis.	Hyaloid Opacity.	Delayed Union and High Astigmia.	Post-op. Mania or Psychic Disturbances.	No loss.	Loss.	No Rupture.	Rupture.	Graefe Knife Only.	Spoon, Loop or Forceps Beside Knife.	Sclero-corneal with Conjunct. Flap.	Corneal.
1.....	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	1	1	..
2.....	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
3.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
4.....	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	1	..
5.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
6.....	1	..	..	..	..	1	..	..	..	..	1	..	1	..	..	1	..	..	1	1	..	1	..
7.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
8.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	1	..
9.....	..	1	..	..	..	1	..	..	..	..	1	..	..	1	..	1	..	1	..	1	..	..	1
10.....	..	..	1	..	1	..	1	..	..	1	1	..	..	..	..	..	1	1	..	1	..	1	..
11.....	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	1	..
12.....	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
13.....	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	1	1	..
14.....	..	1	..	..	..	1	..	..	..	..	..	1	..	1	..	1	..	1	..	1	..	..	1
15.....	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	1	..
16.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
17.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
18.....	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
19.....	1	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	..	1	..	1	..	1	..
20.....	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
21.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	1	..
22.....	..	..	..	1	1	..	..	1	..	1	1	..	..	..	..	..	1	1	..	..	1	1	..
23.....	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	1	..
24.....	..	1	..	..	..	..	..	1	..	..	1	..	..	..	1	..	1	..	1	..	1	1	..
25.....	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
26.....	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
27.....	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
28.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	1	..
29.....	1	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	..	1	..	1	..	1	..
30.....	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	1	1	..
31.....	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..
32 to 37.	3	3	..	..	..	6	..	..	..	..	..	..	..	..	..	5	1	4	2	3	3	6	..
38.....	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	..
39.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	1	..
40.....	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	1	..	1
	18	15	4	3	8	34	2	4	1	2	5	1	1	3	2	30	10	30	10	25	15	37	3

* 1 ultimate detached retina.

of the sclerocornea without conjunctival flap failing to deliver I passed the wire loop behind the lens and delivered it without loss of vitreous. I understand on good authority that there was slow healing of the wound which possibly may have reopened and the lips of the wound overriding each other being followed by a very high degree of astigmatism 6.00 or 8.00 D. I have, however, not had the opportunity to examine the case since the day of operation.

I am convinced that from the circumstances under which the Indian operators are placed, the apparent lessened susceptibility to infection of their patients, the fact that wounds on Hindoos, like those on the lower races and wild animals, are more prone to heal than in the cultivated classes, and, above all, that these patients disappear from observation soon after the operation, we must depend for the end results on the testimony of others who practice in more civilized countries, where the patient's life history can be followed with more exactions. Therefore, the reports of Cheney,[13] Greene and others, although in proportion showing such a paucity of patients, are of more value to us.

"If the dread of the remote complications is relieved by further experience there is much to be said for the operation" (Elliot[22]). If the ultimate results of the operation are good in the foregoing cases I shall continue to practice it in selected cases.

The operation is not one to be attempted by any but the most skilled operator, and even with him is not to be chosen as a routine method, for it is a far more dangerous operation, except in the hands of an operator whose touch is fine, who has no trembling fingers and whose judgment is the most exact.

ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. WÜRDEMANN AND GREENE

DR. PETER A. CALLAN, New York: I have never done this operation in uncomplicated cataracts. I have done it with a great deal of comfort to the patient in cases of dislocated lenses, and know of no operation that affords such good results when the lens is dislocated into the vitreous, and when, if proper pressure is made, the lens appears at the lips of the wound and emerges without loss of vitreous. I have been satisfied with the old operation, even if I have to make a secondary operation, and I think the dangers of a secondary operation are all due to choice of method in operating. I have seen Major Smith operate and it appeared to me that it was a contest between how much pressure he would apply and how much the hyaloid membrane would stand; in other words, a great amount of traumatism was required to expel the lens in its capsule, and we all, theoretically, at least, know that the more an operation is accompanied by traumatism the more likely the eye is to become inflamed from germs and infection, or iritis and iridocyclitis result, not to speak of loss of vitreous. There is usually no occasion, or rarely, at least, in the old operation to lose vitreous if the patient behaves himself. I have no doubt that this operation affords a great many possible points of advantage to Dr. Smith. He is a ruler, you might say, of an immense district. These patients come to him, he sees them for about one week, and then they disappear, never to be seen again. They are peasants. They are a class of people who do not demand much. They do not read, they do not write, they are living the simple life close to nature, and I think their eyes will stand a great deal more than our workers in the city would stand. Possibly I have no right to criticise this operation, inasmuch as I have never tried it, but I have been afraid to try it. I did not feel that I had any right to try it, as the methods ordinarily used gave me such good results. I hope that inexperienced men who have not the facility to gain experience will not rush in owing to the success of Dr. Greene and Würdemann, and of Major Smith, who is in a class by himself—a man who might perhaps take any kind of a knife and perform a cataract extraction with possibly perfect safety. It makes all the difference in the world whether one has that wonderful technic that he has. I do not think it is fair to put ourselves in that class. It seems to me that until we become practically perfect we ought to stick to the methods we are accustomed to and in which we are proficient.

DR. ARNOLD KNAPP, New York: I am very sorry that I can add very little on the subject of extraction in the capsule to what is contained in my description of a visit to Major Smith which was published in the *Archives of Ophthalmology* last year. I should like to say that in my opinion Major Smith's statistics are accurate. The operation is undoubtedly much more difficult than the ordinary one. Its value can only be established by exact statistics on the visual results obtained and by a record of the subsequent life of the eyes which have been operated on after this method. There can be no question but that the loss of vitreous even with the most skillful operators is much greater than in the ordinary operation. Loss of vitreous, to my mind, may mean imperfect healing of the corneal wound, entanglement of the iris, and subsequently a peculiar transformation of the anterior layers of the vitreous into slightly opaque tissue which interferes with vision. Even if the cataract is successfully removed in the capsule, reposition of the iris, straightening out of the columns of the coloboma can not be practiced with any degree of freedom for fear of vitreous prolapse, which is especially apt to occur at the end of the operation; consequently peripheric iritic adhesions or moderate prolapse of the iris were the rule in the cases which I observed. On the other hand, extraction in the capsule is an ideal and beautiful operation when the dislocation of the lens takes place readily. There is no postoperative irritation or inflammation of the iris and no further trouble with the capsule, which in many cases makes the secondary operation more hazardous and difficult than the first. The Indian patients, though younger in years, are about as old as ours, as they mature and grow old earlier. They are usually emaciated and very thin. I did not observe in India any of the fat, plethoric patients who with us are so notoriously prone to postoperative complications. The cataract patient in Jullunder is subjected to practically no preparation and is operated on directly after admission. Perhaps on the whole they are better behaved during the operation. Through the courtesy of Dr. Greene I was able to compare the lenses which he had extracted in the capsule in this country with some that I had brought from India. There was no appreciable difference. I wish to express my admiration for Dr. Greene's excellent results and trust that observation of the subsequent course of these eyes may confirm the claims which have been made for this operation.

DR. CASEY WOOD, Chicago: Recently, at the invitation of Dr. D. W. Greene and in the company of Dr. Edward Jackson, I spent two days of about ten hours each in examining patients, witnessing and assisting at the procedure commonly known as Major Smith's operation for cataract. This work, done by Dr. Jackson and myself at St. Elizabeth's Hospital, the Old Soldiers' Home, and in Dr. Greene's private office, included a careful examination with the oblique illumination, the ophthalmoscope, and other methods of precision of patients who had been previously operated on (many of them reported) by this so-called Indian method and in comparing them—especially in the Soldiers' Home—with extractions done at various dates by other methods. In this way I had an excellent opportunity of watching the steps of the Smith operation as performed by Drs. Greene and Bonner in nine cases and of critically reviewing the results of the operation in the persons of 47 other patients who had submitted at the hands of Drs. Greene, Bonner and Millette to the Indian form of extraction from a few days to three or more years previously.

Of the 47 patients examined by the ophthalmoscope, etc., I never saw a single case of glaucoma or detached retina, although Greene, in his paper, reports one or more of the former.

The proportion of unusually good vision (20/15 to 20/30) was, I believe, greater than results from ordinary methods of

22. Elliot: Cataract Extraction, Brit. Med. Jour., Dec. 19, 1908.

extraction. I not only found central vision in those cases already reported by Dr. Greene to have been correctly reported but in some six instances to have been better than that set forth in his reports. This is a circumstance that lends plausibility to the claim that, while eyesight tends to deteriorate (chiefly as a result of opacification of the capsule) during the first six months following the older methods, it improves after the Smith operation, owing to the absorption of intraocular bleeding and the re-establishment of normal vascular conditions disturbed by corneal and other traumatism.

The eyes operated on showed very few traces of iridic, capsular, hyaloid or pigmentary incarceration; the sclerocorneal wound appeared to have healed as smoothly as in the older forms of operation, and, with few exceptions, by first intention. The media were found to be exceptionally clear and the black, generally large pupil give an unobstructed and well-defined view of the fundus.

On the other hand, patients recently operated on showed, in practically every instance, decided scleral and faint ciliary injection—a vascular engorgement that appeared to me to persist longer than after the classic modes of extraction and to be due to mechanical irritation—traumatism involving the cornea, iris and, possibly, the ciliary body.

Corneal alterations—haze of the *substantia propria*, disturbances of the anterior epithelium, mild forms of keratitis—I saw in several cases of recent extraction; but I do not think that striped keratitis or other forms of the more serious corneal changes were seen more frequently than in the older operations. Properly or not, I regarded these early keratitic sequels as due to the friction of the cornea by the end of the strabismus hook.

Although there were no cases of thickened capsule or of capsular remains (except in a few instances in which the latter had ruptured during the operation but did not obstruct central vision), yet I saw seven instances of decided exudation into the posterior chamber, two evidently vitreous hemorrhages, five of them deposits on the hyaloid membrane.

There were many small, ideally shaped, key-hole pupils, but more than a majority were wide and large, with a tendency to upward displacement—a condition that, of course, marred the cosmetic result, even though it did not interfere with central vision at the near point.

If from this slight experience I might be allowed to venture an opinion as to the place of the Smith operation in ophthalmic surgery, I would say that, given an experienced, intelligent and skillful operator, working in conjunction with a tried and equally experienced assistant and counting success in cataract extraction entirely from the standpoint of the amount, quality and persistence of central sight six months after the operation, the Major Smith procedure is the best method for extracting all forms of senile cataract with which I am acquainted.

DR. WALTER R. PARKER, Detroit: I have attempted the extraction of the lens in the capsule in 23 cases. In 3 of the cases I failed. One patient had postoperative mania the night of the operation and the eye was lost through panophthalmitis. This leaves 19 results about which to speak. In the 19 cases the average of vision from 10 days to two weeks after the operation was 6/36, not quite so good as the average of vision in the patients operated on by the regular method. In about 50 per cent. of the cases the lens turned on itself and was delivered in the classical way. The other 50 per cent. presented the upper edge first. There was a slight loss of vitreous in 21 per cent. of the cases. In no case was there any iritis, and in no case was the loss of vitreous so large that it influenced the result in any way. That the operation is a difficult one I think can not be denied. It certainly is more difficult than the classical operation. I have done about 480 extractions, 23 of them being those I have mentioned by this method. The first case I had was simplicity itself. The lens, presented with its upper border, came out very easily, and in that case before the patient left the hospital he had vision 20/20. That is the only case in which I can report the ultimate result. It was reported in the *Ophthalmic Record*, April, 1906. The amount of keratitis is much greater by this method than by the regular method. Dr. Greene has cleared up a point that in the few cases I have done has bothered me very much. If you will examine the eye carefully after operation you will find corrugations running vertically. This condition Dr. Greene attributes to disturbance in the anterior vitreous. That a trained assistant is necessary seems to me certain. The operation has been simplified very much in my hands by the new instruments, the large hooks and the double spatula. I think if one reads the original description by Major Smith one is inclined to believe there must be prolonged constant pressure on the cornea. After the pressure on the lower part of the cornea has ruptured the capsular attachments below, then all the pressure is stopped so that the lens will have an opportunity to come anteriorly, and it can be turned on itself by manipulation.

DR. W. H. WILDER, Chicago: I think that in arriving at a conclusion on any important procedure which is more or less of an innovation we must study and analyze very carefully the results of any series of cases. Not wishing to offer any captious criticism of these papers, I should like to call attention to the fact that the first essayist whose paper purports to be a record of 40 cases of extraction in the capsule includes 3 extracted with the wire loop when he feared the vitreous might escape, an operation we all do in an emergency. Furthermore, there is no detailed record of the 6 cases from 32 to 37, so it is impossible to see how they can throw any light on the value of the operation.

The first essayist further advises that this operation be performed only in selected cases and "is not one to be attempted by any but the most skilled operator." This is conceded by all, and we must look to these skillful operators to guide us in this new operation.

Major Smith, I think, confesses to a loss of vitreous in from 7 to 8 per cent. of his cases, but the first essayist shows unquestionable skill, for he claims a loss of no more than 5 per cent. Referring to the value of the lid holder in place of the squint hook of Smith, he states that he loses "vitreous in not more than 5 per cent. of cases either with or without capsulotomy." The analysis of his cases, however, tells a different tale.

I do not wish to criticise his results in the least; he must have a great deal of skill, for he has had the opportunity, as he states of operating on 174 cases of cataract in the last two years, else how could his records show 37 of his 40 reported cases done since March, 1907, "selected" and suitable for this operation. I only submit that in offering conclusions to the profession, as guides to practice, one should show extreme care, not only as to statistics, but also as to the degree of enthusiasm manifested for the new method.

The first essayist states in his abstract that he finds this intracapsular operation as successful in his hands as the ordinary method of extraction; another evidence of his great skill, but not a very safe guide for the rest of us.

I have seen a number of these operations done by Dr. Greene at the Illinois Eye and Ear Infirmary, where I have many cases, but unfortunately not so many as 174 in two years, but have not felt it wise to vary from the old method. But I do see, if this can be proved successful in immature cataracts, it will be an extremely valuable method. Dr. Greene kindly consented to do some operations in our clinic and I had the pleasure and profit of assisting him. I wish to compliment him on the way he did them. Of the patients operated on 3 were mine. One patient with Morgagnian cataract got along beautifully. There was violent reaction after several of the operations, and in many of the patients there appeared this latticework keratitis which usually, I understand, clears up, and in most cases did, but not in all. One patient left the house with an opacity of the cornea which might be due to an injury to the membrane of Descemet. But, until we get some more positive statistics than those of Major Smith, the character and temperament of whose patients are so different from ours, we should withhold judgment; and then we should demand that such statistics as are presented to us be reliable in all details, because if we are going to weigh successfully the value of this operation we must know how much loss of vitreous occurs, what vision we get, and whether the after-history of the cases is as favorable as with the old method.

DR. PERCY FRIDENBERG, New York: It may be of interest to those present to hear of the after-history of the operations done by Major Smith at the New York Eye and Ear Infirmary last summer in the clinic of Dr. Gruening, then under my charge. One patient had had a preliminary iridectomy two weeks beforehand. The operation itself was performed without complications whatsoever, and that the assistant was sufficiently trained may be known from the fact that it was Dr. Arnold Knapp. The thing noticed by all the observers near was that both of these patients complained of intense pain. The second point was that the expression of the lens seemed to take much more time than usual. Dr. Callan has called attention to the fact that it is attended with a great deal of traumatism. When the patients' eyes were bandaged and they were sent back to the wards I asked Major Smith when he wanted them dressed. He said "Let them go four or five days; there are no complications to be feared and there is no necessity for an early dressing." Our practice is to redress them 24 hours after the operation. Acting on his instructions we let them go an extra day. In both cases there was an extreme reaction. In both cases there was very marked striated keratitis. In the case in which the iridectomy had been performed combined with the operation a narrow iridectomy without reposition of the coloboma but immediate expression of the lens, there was very marked iritis which progressed in spite of careful treatment. I had Dr. Gruening come down and see the case. It went from bad to worse and was one of those sluggish cases of iridocyclitis, and at the end of a month vision was practically *nil*. In the other case there was a severe striped keratitis, which gradually cleared up, but on the third day the patient, a woman of 63, complained of a great deal of pain in the eye and herpes of the cornea was found. I do not know whether the traumatism produced that or not, but it cleared up and finally the sight was 20/50 with correction.

DR. L. WEBSTER FOX, Philadelphia: Two years ago at our Symposium on Cataract before this Section I had assigned to me "The Delivery of the Lens and the Toilet of the Wound." Up to that date and since I made many attempts to deliver the lens in its capsule, after the method of Pagenstecher, and later, following as nearly as I could the Smith method, even going so far as to devise various shaped instruments to assist in the delivery of the lens. As I was searching through the literature I found that Dr. Greene had written the best description on the subject, and that his experience with the operation exceeded that of any other surgeon in our country. Having these facts in hand, I communicated with him. Later he invited me to Dayton to witness eight operations by the Smith method. Having become encouraged by the ease with which Dr. Greene delivered these cataracts in their capsules, I have, since my return home, performed five operations by that method. The first three were ideal; the fourth was performed on an unruly patient, and, while the lens was delivered, yet considerable vitreous was lost; the fifth was similar to the fourth, only the loss of the vitreous was greater and the result was a collapsed eyeball. Notwithstanding the fact that I filled the eyeball with normal salt solution, there was no vision in the eye, although the rotundity of the globe was restored—there evidently was complete separation of the retina. Dr. Greene is right when he asks: Is this operation to take the place of our common practice, or is it too difficult for the average ophthalmic surgeon to follow, or can it only be followed by the most skilled operators. Let the question be settled by those having exceptional opportunities? At present I am non-committal, but intend to follow this method until I have acquired more dexterity than I possess at present. I endorse Dr. Callan's advice that it is not fair to his cataract patient for any surgeon to operate by a new method until he has mastered the technic of that operation on pigs' eyes. I am sure that it is a practice which may well be adopted by all ophthalmic surgeons. This country must decide whether this operation is to be a popular one or not. From what I can learn the ophthalmic surgeons of European countries are not enamored with it, so far they have fixed our methods.

DR. FRANK ALLPORT, Chicago: The first question that I wish to solve is: Am I going to give up an operation with which I am familiar and feel competent to perform and one which yields me excellent results, for one with which I am unfamiliar and one requiring extra skill and much experience to perform satisfactorily? In other words: Which operation in my hands will perform the greatest amount of good to the greatest number of people? The Major Smith operation is undoubtedly an excellent one and frequently yields startlingly brilliant results. In Major Smith's hands, with his constant practice and enormous experience, he is doubtless justified in the continuance of its performance. Dr. Greene, with his large operative material and natural and acquired operative skill, is doubtless justified in this work. I would be glad to trust my own eye in the hands of either of these gentlemen. The questions for me to settle, however, are: Am I going to experiment with this operation? Am I justified with the limited number of cases which I have at my command *per annum* in abandoning a satisfactory procedure for an extra hazardous operation with which I am unfamiliar and which requires an extra amount of skill to perform? I imagine this is a problem which we will all have to solve and I hope it will be solved in a manner which will best subserve the interests of our patients. I am an average operator with an average practice and with an average amount of skill. My senile cataract cases, I am sure, do not exceed 25 a year, and I do not consider that this number justifies me in experimenting with the Smith operation. Does it justify most of the gentlemen here present? I was particularly impressed with one thing that Dr. Greene said, namely, that it seems to be essential to success that the patient must constantly look upward in order to do away with the traction on the part of the inferior rectus muscle. This seems to me to be a great objection to the operation because it is practically impossible always to control the voluntary action of the eye on the part of the patient.

DR. M. WIENER, St. Louis: I was one of the early enthusiasts regarding this operation. I have attempted 42 extractions in the capsule, 2 of which ruptured and can not be counted; I have had 7 vitreous losses. I abandoned this operation nearly two years ago and I will not perform another for a long while. I have had 3 cases of these 40 patients return with a membrane across the pupil. In 2 of these cases there was no loss of vitreous. One of them occurred a little over two years after the operation. Now if a membrane is going to occur where the capsule is removed I can not see the advantage of it, especially when the operation is very much more difficult than the usual extraction with iridectomy. Another danger which might be mentioned is this: I lost only one eye and that was in a case in which the operation itself was everything that could be asked; the lens rotated properly; but on the third day after the operation the patient developed a cold. He coughed and suddenly complained of pain in his eye. On removing the bandage I found a large bead of vitreous in the wound which I clipped off, but the eye atrophied and no vision was obtained. Of course, this might also happen when the posterior capsule remained intact, but it is not nearly so liable to happen. I think we should hear more of the ultimate results of this operation before proceeding too rapidly.

DR. MARK D. STEVENSON, Akron, Ohio: I have attempted the operation in 14 cases. In 2 I failed by rupturing the capsule. I had 2 losses of vitreous and 1 severe iritis. Every patient has good vision so far. I learned much concerning this operation during some visits I made to Dr. Greene last summer. I wish to emphasize the importance of a large corneal incision—fully the upper half. I do not especially like a conjunctival flap in this operation, especially toward the sides. A small one at the summit of the corneal flap may cause no trouble and be useful. I do not make a wide iridectomy but simply cut the iris through the sphincter, not removing any of the iris. After making the corneal incision and performing an iridectomy I stand at the side of the patient and the assistant stands at the head. By removing the capsule with the lens, there is not only no necessity for future needling, but the troublesome capsular fragments which in other operations lie in the wound, preventing healing, causing iritis, etc., are not present. There is no swollen ring of cortex as in other operations pressing against the iris. At a meeting

of the Ohio State Medical Association last month I first heard Dr. Greene state that the lens often turned over in its exit from the eye. Months before and the first time it occurred to me I thought it was an accident, but it was such a successful operation without loss of any vitreous, that I decided in the future to try to make the lens turn over. First I rub the cornea with the end of the hook a little above the lower border and parallel to it, gradually widening my arc until the lower part of the zonula is considerably depressed. Next I rub on the margin of the cornea and even on the sclera pushing it behind the edge of the lens which has been displaced not only backward, but because of its slanting surface, upward. As soon as the lower edge of the lens is in front of the crease pressed into the cornea by the hook, the hook is gradually swept upward and the lens inverted with much less chance of vitreous loss than if it had been pushed directly out of the eye. In this way, the lens comes first and the corneal opening is blocked until it passes. I have found that a properly shaped Pagenstecher's smooth glass rod spatula makes an excellent instrument with which to press the cornea. I think I prefer it to the strabismus hook. I would not advise the use of forceps in delivering the lens, as the capsule would immediately rupture.

DR. J. W. MILLETTE, Dayton, Ohio: I have assisted in a goodly proportion of these 75 cases and have carefully followed the development of each case and have correlated and prepared the statistics in connection with the paper, and I desire to state that Dr. Greene has approached this work in the true spirit of the student. Recognizing the imperfect character of cataract work, and trying to find some better method, he has given us the truthful record of the results obtained. He requested that I speak briefly of what the assistant does. During the incision and iridectomy the upper lid is retracted by the Noyes elevator. The lower lid is slightly retracted with the face of the thumb or index finger. I most frequently use the finger. The patient's lids are under absolute control, a thing that is not true and can not be true with any speculum with which I am acquainted. The patient can not do harm by squeezing. From the time the incision is finished the patient may do great harm by contraction of the inferior rectus, which opens the flap and exposes the contents. If he will persistently look toward the ceiling, as he lies on his back, he is in as nearly perfect condition as is possible. After the iridectomy is made I lay aside the Noyes elevator and use the large hook. With this the action of the orbicularis is under perfect control.

The operation has some features which will hinder its universal adoption. 1. It requires a trained assistant. Major Smith and many of his followers say that the assistant is almost as important as the operator himself. 2. It requires a greater degree of skill than the capsulotomy method. Sufficient skill may be attained by any man who has skill enough to do the ordinary extraction, if he will practice. I do not advise practice on pigs' eyes, nor calves' eyes, nor sheep's eyes. I have wasted dozens of them. They are most unsatisfactory. But a good live dog, properly bound up, is a good subject. Rabbits are good, the dog is the best in my experience. 3. There is a somewhat greater degree of violence than in the other methods, but the violence to the cornea even is not so great as it seems. I have observed that the men who have been in these clinics and have placed the hook on the cornea have been prone to begin with too much force. A little more force than the weight of the hook is sufficient, together with the pressure in one place with the spud. 4. There is also loss of vitreous more frequently. As to the future of the eye from loss of vitreous, up to one-third, we have no positive statistics. We should hold ourselves agnostic. There may or may not be future evils resulting from this minor loss. 5. The cosmetic effect is not so good, but occasionally we do get that ideal keyhole appearance. Ordinarily the pupil is "U"-shaped with a broad base and frequently displaced upward. However, I believe that there are four considerations to which we must give their deserved supremacy. The first is the permanent disposition of the capsule and its contents. Second, a secondary operation is avoided. Third, postoperative complications are practically *nil*. Fourth, most important of all, we get better vision. I have had the privilege of studying the 75 operations by the capsulotomy method just preceding these. As nearly the same kind of eyes as one could get, patients of the same character, the same age, operated on by the same operator under conditions as nearly identical as could be, and the vision, as recorded in these records, with the capsulotomy method was 20/40, while with the Smith method it is 20/27. But to know more fully the good and bad qualities of the method and to know if it be generally practicable, we must have the results of more operators carefully and without prejudice recorded. The pioneer work being done in the clinics at St. Elizabeth's Hospital and the National Military Home at Dayton should be emulated. We want to know the best, for the best will never reach the conscientious oculist's ideal for his patient.

DR. H. V. WÜRDEMANN, Seattle: As is to be expected, the sentiment of the Section is somewhat unfavorable from the theoretical side, but, gentlemen, try 10 operations and then come and talk about it. In pushing the lens back I do not think when it turns it goes into the vitreous through the fossa patellaris, through the hyaloid membrane; in the cases in which it makes the characteristic somersault I have not lost vitreous. In the others in which the whole ligament seemed to rupture and the lens came straight out I have had loss of vitreous probably most of the time. There are less postoperative disturbances. I have practically no iritis, 0.5 per cent.—see the statistics of Smith, those of Dr. Greene and my own. Iritis may be due to infection. In some of my early cases I failed to deliver the lens and I went on with the other operation. The central acuity seems to improve after the operation rather than to decrease as after the capsulotomy operation, except in my experience in one case in which hyaloid opacity followed. Striped keratitis, in my opinion, depends as much on the use of strong percentages of cocain and on bichlorid solution or ointment as on the rubbing of the cornea. I beg to correct one of the speakers in that my statistics were somewhat distorted by him. I remarked that I did 154 cataract operations, of which 40 were expression operations, within the course of two years, and printed in the paper is a report of 10 cases out of the 40 with loss of vitreous, making 25 per cent., not quite so good as Smith's, instead of "better." The meat of the cocoanut of this discussion was the fact that this is a better operation for cataract than all others but must be done by skilled men, and even oculists of much experience will have to learn the technic by getting down to pigs' or, preferably, rabbits' eyes, because the lens of the rabbit's eye is more like that of the human eye, and acquire dexterity before operating on the human eye.

DR. D. W. GREENE, Dayton, Ohio: I wish to impress on the members of the section that I have approached this subject in the spirit of a student. I have made 145 cataract extractions since the first day of last August. All except 5 of these have been by this method, so I need hardly tell you that I have not selected the cases. I am not here to champion the Smith operation. Smith will have to take care of that, and ophthalmologists who have sufficient opportunity will have to settle the future of the operation. I am impressed with the operation and the results I have had from it, and I shall continue to practice it until I see some better reason than I have yet seen to depart from it.

In regard to Dr. Callan's statement regarding the pressure, I think that is a point where men make a mistake. There is no great pressure applied. Dr. Casey Wood will bear out this statement. He manipulated the hook in one case, and the lens described all the versions seen in the diagrams and came out whole. Dr. Jackson did the same thing. There was no loss of vitreous. It is not so much the pressure as the manipulation that delivers the lens. Men get an exaggerated idea of it. You have an empty anterior chamber and you are pressing against a soft bag, so to speak, and there is nothing behind to resist you except the vitreous, hence the manipulation seems excessive.

Some one spoke of Major Smith operating on these patients and never seeing them again. He says that is absolutely untrue, but that in India they will hunt him up and he sees them more frequently than he wishes to. I have seldom seen the iris

prolapse in healing. This accident is usually associated with high blood pressure, which I have reduced whenever possible.

As to the visual results another mistake is easily made; if you test these cases as after an ordinary cataract operation, you will be disappointed. Visual results, like old wine, get better with age, and one should not refract these patients under thirty days after the operation. Three years ago I reported twenty-two cases of so-called Smith operation at Oakland, Mich. I had one case of glaucoma occurring between my visits to the National Military Home. I visit the Home on Tuesday afternoon, and not again until Friday afternoon. In the meantime, the cases are under the care of an assistant, who is not an oculist. He is a member of the medical staff, and I take him as an assistant for a year and teach him all that I can. This case of glaucoma occurred between my visits and the eye was lost. The other case of glaucoma came on a year after the operation and I do not think had any connection with it at all. These make 98 patients whom I have operated on with one case of glaucoma, up to the time my statistics were compiled.

In regard to keratitis I have been awkward enough to get it, but less frequently now than when I began the operation. If one will make steady pressure and manipulate the hook properly and keep away from the center of the cornea and deliver the lens quickly he is not likely to get it. Thirty to forty years ago Pagenstecher noted the presence of lattice keratitis and also a disturbance in the anterior layers of the vitreous which I have also seen, but they have always cleared up in my experience.

Visual results are better than by the old method and have remained better so far as I have watched them. The future of this operation, depends entirely on visual results. I do not know the future of this method, I am not here to tell you that the smallest loss of vitreous does not harm. I know better than to do that. We do not yet know what the ultimate result of loss of vitreous will be. We have no statistics to determine it, Major Smith is not in a position to determine it definitely, and pathologists can not help us. I can only say that I have not seen any harm result from the loss of one-third up to this time. The future of the method depends on how the profession in this country, men of broad and liberal minds with large operating fields, will accept it. If they are ready to take it up and follow it to its legitimate conclusion, we will soon know its place among cataract operations, which will be largely determined by the percentage of vitreous loss and the harm, if any, which ultimately results from moderate loss. In my opinion, these questions will never be settled by theoretical or *a priori* reasoning, but must be settled by cold statistical facts and figures.

SECTION COMMITTEE REPORTS

[EDITOR'S NOTE: The following reports of committees were presented before the Sections at the Atlantic City Session, June 7 to 10, 1909. They are referred to in the minutes of the Sections which appeared in THE JOURNAL, July 3.]

REPORT OF THE COMMITTEE ON THE REVISION OF THE PHARMACOPEIA *

It has not been the aim of this committee to do more than bring forward what seemed to be the changes which might advisedly be made in the revision of the Pharmacopeia from the standpoint of the clinician. There are many points which the general committee on the revision have to consider which do not specially concern us. As is well known there are many interests to be considered, perhaps how many only those on the committee have any idea. The discussions of these, however, is not in place here, and it seems advisable to take up only those points which may profitably be considered by the clinician.

What should the Pharmacopeia include? Should it be kept to the smallest limits or allowed to expand? Should every drug which is included in it be carefullly scanned at intervals to see if its position is still deserved? Should additions be looked at with careful scrutiny or should we go on the principle that everything which the profession uses should be included? Should combinations of drugs be admitted or not? Should proprietary or patented remedies be admitted to it? Should Tct. X Co. be in the Pharmacopeia when Tct. Y Co is not? Ask yourself some of these questions put them to your friends and you begin to realize how many views there are. It is probably not our province to pass on these, but still we may say something.

Under the title, "The Capture of the Pharmacopeia; With Suggestions for its Recapture," Leffman[1] has pointed out what a small proportion of the committee on the last revision was composed of clinicians, the majority being pharmacists. A reversal of these numbers would seem to be in order—yet it can safely be said that the majority of the profession take little interest in the Pharmacopeia, know little about it, and do not feel that it really concerns them. This is a matter which we should regard very seriously and anything which can aid in making the Pharmacopeia more used as a handbook by the profession is well worthy of consideration. Of course there are many causes for this and the remedy lies in various lines, such as the proper instruction of students in their attitude towards and knowledge of it. But these hardly come in the province of this discussion.

It will be granted that it would be a great advantage to have the profession more familiar with it and as far as possible using the drugs therein contained. That there are certain drugs which will be used and can not be admitted is evident. For one thing the revision takes place only at intervals and new substances protected by a trademark or patent must be considered. At present many of them are in extensive use. But the great bulk of the drugs which we need to use are found in it. Probably a certain number of the profession will use substances or combinations which can never be admitted. The more they know about the Pharmacopeia the fewer will belong to this class. To have the Pharmacopeia used more extensively by the profession seems an important matter and the more convenient it can be made, the more closely we can bring the drugs in it to correspond with the ones in active use, the better.

An important point which should be kept in mind is the possibility of making the Pharmacopeia something which will come into constant use by the members of the profession generally. In bringing this about one important thing is the reduction in size, which seems to be a point worth considering. Might it not be possible to omit the appendix? The reply may be made that this is an integral part of what the Pharmacopeia should be and yet for the medical profession it is of little importance. Perhaps an edition for the profession might be published in which the various directions regarding preparations, which belong more strictly to the pharmacy side, might be omitted. Another point which is put forward for discussion is in regard to the publication of an annual bulletin, such as has been brought out by the American Medical Association. The value of this to the profession has been tremendous and we owe a great many thanks to those who have done the work of its preparation. Would it be possible to have a somewhat smaller publication in association with the Pharmacopeia brought out every year or every second year? If this were done the profession would probably regard the Pharmacopeia more as a volume dealing with everyday things than as a record of the past. It may be the general opinion that this is better left to the American Medical Association, but the advisability of the other course seems worthy of consideration. This would not exclude the work at present being done and might be carried on in conjunction with it.

Another point is as to the advisability of introducing any substance "which cannot be produced otherwise than under a patented process or which is protected by proprietary rights." The advisability of doing this is hinted at in the eighth Pharmacopeia. Your committee feels that this would be a mistake and that the position taken in the last Pharmacopeia should be maintained. To do otherwise is to admit the thin edge of what would prove to be a very large wedge. Certain drugs might be omitted without any harm being done but who is to draw the line? It seems safer to hold by the present rule; there is less danger in that than in the other case. How many of the preparations which would have been admitted ten years ago, would be considered worthy of a place to-day? How many which might be regarded as worthy of a place to-day would be retained ten years from now? At the same time one must recognize that there is much to be said for the other view, that under proper safeguards some of them might be admitted.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Read before the Philadelphia County Medical Society, March 24, 1909.

Drugs which should be dropped from the Pharmacopeia. It may be thought well to retain some of these in the National Formulary for various reasons. The majority do not seem to deserve a place and should be dropped for want of sufficient recognition and use. Some are used in certain localities, but this should not justify their retention.

Acetum Opii.
Acidum Camphoricum
Aconitina: (This should be dropped on account of its strength and variability as well as the dangers of poisoning.)
Adeps: (The use of this has almost entirely ceased. It has been replaced by more suitable substances.)
Althea.
Anthemis.
Berberis: Fluidextractum Berberidis.
Calamus: Fluidextractum Calami.
Calendula: Tinctura Calendulæ.
Cassia Fistula.
Chimaphila: Fluidextractum Chimaphilæ.
Chirata: Fluidextractum Chiratæ.
Cimicifuga: (Tincturæ Cimicifugæ; Fluidextractum Cimicifugæ; Extractum Cimicifugæ.)
Cinchonidinæ.
Cinchoninæ Sulphas.
Cypripedium: Fluidextractum Cypripedii.
Euonymus: (Fluidextractum Euonymi; Extractum Euonymi.)
Eupatorium: Fluidextractum Eupatorii.
Frangula: Fluidextractum Frangulæ.
Gambir: (Tinctura Gambir Composita; Trochisci Gambir.)
Geranium: Fluidextractum Geranii.
Hedeoma: Oleum Hedeomæ.
Krameria: (Tinctura Krameriæ; Fluidextractum Krameriæ; Extractum Krameriæ; Syrupus Krameriæ; Trochisci Krameriæ.)
Lappa: Fluidextractum Lappæ.
Linimentum Saponis Mollis: (This causes confusion as it is not intended to be used as an embrocation. The same might be changed.)
Marrubium.
Matico: Fluidextractum Matico.
Matricaria.
Mezereum: Fluidextractum Mezerei.
Oleum Coriandri.
Oleum Erigerontis.
Oleum Sabinæ.
Oleum Sinapis Volatile.
Pareira: Fluidextractum Pareiræ.
Phytolacca: Fluidextractum Phytolaccæ.
Pimenta: Oleum Pimentæ.
Piperina.
Pulvis Acetanilidi Compositus: (There does not seem any reason for retaining this combination.)
Quillaja: (Fluidextractum Quillajæ; Tinctura Quillajæ.)
Rhus Glabra: Fluidextractum Rhois Glabræ.
Rubus: (Fluidextractum Rubi; Syrupus Rubi.)
Sabal: Fluidextractum Sabal.
Safrolum.
Salvia.
Scutellaria: Fluidextractum Scutellariæ.
Staphisagria: Fluidextractum Staphisagriæ.
Stillingia: Fluidextractum Stillingiæ.
Unguentum Potassii Iodidi.
Unguentum Zinci Stearatis.
Unguentum Hydrargyri and Unguentum Hydrargyri Dilutum: (Much confusion is caused by these two ointments and one should be dropped.)
Xanthoxylum: Fluidextractum Xanthoxyli.

In regard to the question of additions, the committee recommends that the physiologic standard for the strength of certain drugs be adopted. Among these we should suggest digitalis, strophanthus and ergot. At present various methods are used, and it would seem wise that a definite standard should be laid down. Regarding the drugs which should be added, the following seem worthy of consideration:

Calcium Lactate: This is being used more and more and is rapidly replacing calcium chlorid.

Phenolphthalein: This has come quite extensively into use and its value seems to be definitely established. It might possibly be wise to add the preparation which can be given hypodermically.

Arsenic: The use of arsenic has increased a great deal of late, especially its hypodermic administration, and it seems wise to have some preparations in the Pharmacopeia which can be readily used in this way. Of these the value of sodium cacodylate and sodium aminophenyl arsenate seems definitely established.

Theobromin: The value of this seems sufficiently established.

Bile Salts: The suggestion that their inclusion be considered seems worthy of consideration.

Diacetyl-morphin and *Theobromin-sodio-salicylate* are extensively used and worthy of being added.

It may seem that the number of drugs to be included is in striking disproportion to the number struck out. The overgrown condition of the Pharmacopeia supports the advisability of this. There seems good ground for the feeling that we should go slowly in adding to what has too much already.

JOSEPH A. CAPPS, Chicago.
JOSEPH H. PRATT, Boston.
THOMAS MCCRAE, Baltimore.
JOHN T. HALSEY, New Orleans.

ABSTRACT OF DISCUSSION

MR. M. I. WILBERT, Washington, D. C.: From a pharmaceutical point of view the report is a very pleasing one. There can be no doubt but that members of the medical profession should absolutely dictate the contents of the Pharmacopeia. That is their province, it is their duty. The Committee on Revision of the Pharmacopeia is often mistaken for the revision convention. We frequently hear that the clinician, the medical practitioner, is not represented on the revision committee; as a matter of fact the clinician requires no representation on the revision committee at all. There is nothing in connection with the work of the revision committee that is of any direct interest to him, or to which he can contribute materially; he would hamper rather than aid the work of revision. The medical profession should dictate what the Pharmacopeia should contain and the method of providing it.

Much has been said about the size of the Pharmacopeia. Here again the medical man should insist that a more distinct division be made between pharmacopeial matters proper and the chemical tests. Much of the material now in the Pharmacopeia itself could be relegated to this appendix, and thus divide the Pharmacopeia into two volumes; one the Pharmacopeia proper which the physician could use and which would contain all the information he wanted, while the combined volumes should contain all the information the pharmacist needs and must have. As the report states, the function of the Pharmacopeia is primarily one of standards; it should be simply one of standards and not a medical lexicon. If the standards are correct they do not need changing annually and only such changes need be made as are found necessary to correct palpable errors. The more or less ephemeral drugs are sufficiently well defined by the Council on Pharmacy and Chemistry of the American Medical Association in "New and Nonofficial Remedies."

Ninety years ago, when the United States Pharmacopeia was originated, it was in the hands of medical practitioners who had a wide scope of vision. They wished to make the book valuable and to keep it in harmony with the standards established abroad. Singularly enough, that idea prevailed until the Pharmacopeia came to be revised by pharmacists and converted into a book on pharmacy. In 1902, an international congress was held in Brussels for the purpose of establishing standards for potent medicaments. Among the articles acted on was mercurial ointment; a 33 per cent. ointment of mercury was adopted as an international standard. The Committee on Revision of the United States Pharmacopeia, in attempting to comply with the international requirements, introduced a diluted mercurial ointment, or blue ointment, which, by the way, is not blue at all, but green, and does not comply with international standards except so far as its strength is concerned. If the Pharmacopeia is to meet the needs of the medical profession true international standards must be insisted on.

I wish to congratulate the profession on the tone of the report. If the medical practitioners of the country will assume a more dictatorial policy, the next Pharmacopeia of the United States will be of value to the medical man and a real necessity to the pharmacist.

DR. LEWIS A. CONNER, New York: The difficulties attending the selection of the more or less obsolete drugs to be dropped from, and the new drugs to be added to, the Pharmacopeia are many and great. The recommendation of the committee as to the drugs to be dropped will, I think, be generally approved. They can all well be spared. The number of drugs recommended for admission, however, is, it seems to me, regrettably small, and the reason for this lies in the fact that the committee has decided not to recommend any drug which has been patented. However much we may prefer to use unpatented drugs, the fact remains that practically all the modern, synthetic drugs are so patented, and among this number are many remedies in constant, daily use, which could not be dispensed with without the serious crippling of our therapeutic resources. Such drugs, for example, as aspirin, adrenalin, argyrol, heroin, ichthyol, veronal—to mention only a few out of many—shall we abandon their use merely because they are patented? I think few would venture to

recommend so radical a course. But, if we are to continue to use them, should they not, if they have proved their usefulness, have a place in the Pharmacopeia? It seems to me that they should.

It will be generally admitted, I think, that the Pharmacopeia at present fails to meet the needs of the practicing physician and has lost its position as guide and book of reference in his daily work. The reason for this is chiefly that in it he seeks in vain for information concerning many of the drugs is general use. It is idle to expect that he will abandon the use of drugs merely because they are not to be found in the Pharmacopeia. It is much more likely that he will discard the Pharmacopeia itself. One of the very best evidences that the Pharmacopeia does not at present meet the requirements of physicians is the fact that this Association has felt it necessary to publish the two admirable little volumes, "Physicians' Manual of the Pharmacopeia and National Formulary" and "New and Nonofficial Remedies."

If the Pharmacopeia is to regain its position of prestige and usefulness, so far as it concerns physicians, some radical changes in its policy are necessary. In my judgment, the most important of these are: First, the publication of a greatly abridged "Physicians' Edition," as has been suggested by Mr. Wilbert. Second, the inclusion of the more trustworthy and useful of the modern, synthetic drugs, whether they be patented or not. Third, the issuance at frequent (perhaps yearly) intervals of bulletins recording the changes which have been made, the new drugs introduced, the undesirable ones dropped. With the enormous yearly output of new drugs, a certain small proportion of which are really valuable, it is idle to suppose that a volume of this sort which is revised only once in a decade can keep abreast of current practice. The needed flexibility can be obtained, I think, only by the publication of such bulletins at comparatively short intervals.

DR. JOHN F. ANDERSON, Washington, D. C.: One very important agent has been omitted from the list of proposed additions to the Pharmacopeia, namely, tetanus antitoxin. Diphtheria antitoxin was admitted to the Eighth Decennial Revision of the Pharmacopeia following the promulgation of a standard unit for diphtheria antitoxin by the U. S. Public Health and Marine-Hospital Service. On Oct. 25, 1907, a standard American unit for measuring the strength of tetanus antitoxin was promulgated by the same laboratory. The great value of tetanus antitoxin as a prophylactic alone certainly entitles it to admission to the Pharmacopeia, and I hope that it will be included in the next revision.

DR. M. CLAYTON THRUSH, Philadelphia: A smaller edition of the Pharmacopeia for the use of clinicians should include the Latin and English name of each drug, its synonym, a description of the important characteristics of the drug, its dose, solubility and compatibility, with therapeutic action expressed in a few words, and a few other particulars; which is all the average clinician wishes. Such a book could be bought for about fifty cents. A book entitled the "Physicians' Manual of the Pharmacopeia and National Formulary," published by the American Medical Association, contains those very facts; it is a small book and gives the official name, synonyms, characteristics, doses, therapeutic indications, etc. This is really all the physician needs. Therefore, why not supply ourselves with such a manual; in it could be inserted year by year the drugs that the Council on Pharmacy and Chemistry has examined and recommended.

With regard to the admission of new drugs, there is one drug that is largely used at the present time and under so many different names, viz., the active principle of the adrenal gland. This is supplied under different names by the different manufacturers, but all preparations are of the same strength, 1 to 1,000 in normal salt solution. Why not make this official? At present the gland itself only is official. But only about one physician in one thousand uses the gland; all others always use the active principle. It is certainly difficult to decide what is best to add, and what to dismiss.

With regard to dismissals, with such drugs as saw palmetto, for example, there is much adverse criticism. Hallberg collected one million prescriptions in order to show what drugs were most used in this country. He found that saw palmetto, while only prescribed about three times in a thousand prescriptions in Philadelphia, was prescribed over thirty times in Chicago, and so it is with all those drugs if we but investigate. There are drugs used in one portion of the country that are not at all used in another portion. A Pharmacopeia should not be one designed for Philadelphia alone, but for the United States. Therefore, it is important that all the drugs in use all over the country should be included. Here is another point that should be borne in mind; while these drugs are practically of no use, I believe they should be placed in a special place and not entirely dropped, for they may be of some service to certain practitioners in certain localities.

REPORT OF THE COMMITTEE ON PROPOSED ALTERATIONS IN THE UNITED STATES PHARMACOPEIA *

Your committee, appointed by the Chairman of this Section to examine into the merits of various remedies alleged to be of value in ocular diseases, begs to make the following report:

With a view of choosing what seems to be of distinct value to the practitioner and, as such, proper additions to the United States Pharmacopeia of 1910, they decided to settle the matter by a vote of members of the Section. As a preliminary to this action, it was resolved to consider only those remedies that had been investigated by the Council on Pharmacy and Chemistry of the American Medical Association. As is well known, most of the remedial agents recently recommended, generally in glowing terms, to the ophthalmologist are strictly proprietary. As a rule, neither the trade name nor the literature sent out by their owners, gives more than an inkling of their real character, nor do they throw any light on the process of manufacture. He who prescribes such a remedy is altogether in the dark in these important particulars, and might almost as well study his therapeutics in the advertising columns of a trade journal. Fortunately, we have an agency (for which we have mainly to thank Dr. Leartus Connor and its present secretary, Dr. George H. Simmons) that analyzes the constituents and reports on the pharmacal and therapeutic characters of every drug that gains, by advertisement or other means of exploitation, any considerable degree of notoriety or public favor. We refer to the Council on Pharmacy and Chemistry whose reports are published, first of all in THE JOURNAL, and subsequently in a periodical entitled "New and Nonofficial Remedies." The great majority of new proprietary and other remedies exploited during the past ten years have been investigated by the Council and described in this publication.

From the long list of drugs thus treated your committee first chose fourteen, as representing the most desirable additions to the new Pharmacopeia from the purely ophthalmic standpoint. After some consideration of the subject, it was decided that this number might well be reduced to six. To this end a postal-card vote of the Section (about 930 members) was taken with the following result:

Adrenalin hydrochlorid received	552 votes
Dionin	538 votes
Argyrol	474 votes
Fluorescein	407 votes
Protargol	285 votes
Holocain hydrochlorid	257 votes

The variation in these numbers is to some extent explained by the fact that quite a few members voted for fewer than six remedies—a proceeding that has the sympathy of a portion of your committee, who feel that extreme caution should be exercised in giving official sanction to any new remedy; especially to one that has not satisfactorily stood the test of time.

In our opinion the ophthalmologist may easily dispense with some ocular remedies official in the Pharmacopeia of 1900, and this fact might be profitably urged on the Revision Committee in 1910. Among these your committee would suggest the following, as having fallen into general disuse, and we recommend that they be dropped from the revised Pharmacopeia:

Argenti nitras mitigatus or "mitigated stick;" the oleate of cocain; the oleate of atropin; the salicylate of physostigmin (eserin); the Extractum Scopolæ and the Extractum Stramonii.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

It is further recommended that, admitting the therapeutic value of hyoscin hydrobromid, scopolamin hydrobromid be dropped; that it is not necessary to retain two salts of hyoscyamin and that either the sulphate or the hydrobromid be rejected by the Committee on Revision.

Finally, the Council on Pharmacy and Chemistry of the American Medical Association has recently asked your committee the following question: "Does homatropin hydrochlorid offer any advantages over the official homatropin hydrobromid, or does the latter answer for all purposes?" As this committee has before it no reliable data on which to estimate the relative merits of these two salts, it was decided to submit the matter to the Section, declaring at the same time its belief that homatropin hydrobromid appears to meet all the demands made on it as a satisfactory ocular remedy. It has few objectionable incompatibilities, does not readily undergo decomposition, is very soluble in ordinary menstrua, is practically non-irritant, and is readily absorbed by the ocular tissues. *A priori*, there seems to be no reason why it should be displaced by the hydrochlorid.

All of which is respectfully submitted.

EDWARD JACKSON. CASEY A. WOOD, Chairman.
T. B. SCHNEIDEMAN. A. EDWARD DAVIS.

PRELIMINARY REPORT OF THE COMMITTEE FOR THE STUDY OF THE RELATION OF TUBERCULOSIS TO CERTAIN DISEASES OF THE EYE *

The Chairman of the Section requested me to form a committee for the collective study of the relation of tuberculosis to certain diseases of the eye whose etiology is in many cases obscure. It was thought that a number of observers could in time accumulate enough data to draw conclusions that might not be warranted by the smaller number of cases that would be available to a single individual. The following gentlemen have signified their interest in the subject and their willingness to engage in the work of investigation according to the plan agreed on:

C. S. Bull, New York City.	David H. Cooper, Denver.
Arnold Knapp, New York City.	H. C. Parker, Indianapolis.
F. Park Lewis, Buffalo.	A. E. Bulson, Fort Wayne, Ind.
L. Webster Fox, Philadelphia.	L. W. Dean, Iowa City.
W. C. Posey, Philadelphia.	E. R. Lewis, Dubuque.
G. E. de Schweinitz, Philadelphia.	W. H. Wilder, Chicago.
H. F. Hansell, Philadelphia.	Charles H. Beard, Chicago.
Harry Friedenwald, Baltimore	E. V. L. Brown, Chicago.
R. L. Randolph, Baltimore.	William E. Gamble, Chicago.
Hiram Woods, Baltimore.	H. Gradle, Chicago.
G. S. Derby, Boston.	C. D. Wescott, Chicago.
W. H. Roberts, Pasadena.	Oscar Dodd, Chicago.
Melville Black, Denver.	

The committee will be pleased to have the cooperation of others who will study cases according to the plan outlined, keeping careful records on blanks prepared for the purpose. The examination of patients with eye disease suspected of being tuberculous is made according to the following outline:

EXAMINATION OF CASES WITH DISEASE OF THE EYE FOR SUSPECTED TUBERCULOSIS

1. A thorough physical examination of nose, throat, lungs, joints, etc.
2. A careful statement of the diseased condition of the affected eyes.
3. Examination with tuberculin.
   (a) *Cutaneous Test:* One drop of old tuberculin to be gently rubbed into two scarified points on the arm about 5 cm. apart. For control one drop of 0.5 per cent. carbolic glycerin should be gently rubbed into a scarified point midway between and a little to one side of the line of the other points.

°Tuberculin.
°Control.
°Tuberculin.

   The scarified point need not be over 1/12 inch in diameter and care should be taken not to draw blood, but to see that serum begins to exude.

   (b) *Conjunctival Test:* This should be practiced simultaneously with the cutaneous test if one is to all appearances sound and there is no history of previous disease in it. One drop of 1 per cent. solution of old tuberculin in physiologic salt solution should be dropped into the conjunctival sac, and the patient's eyes kept closed for three minutes. The case should be observed twelve hours, twenty-four hours and forty-eight hours after the test to note the reaction, if any.

   Reactions: Time when reaction to cutaneous test occurs should be noted, and the case should be seen in the first twenty-four hours. Size of areola should be measured in millimeters and the intensity of the reaction noted. Temperature should be taken and general condition noted. Vaccination point should be observed twenty-four and seventy-two hours after test, especially if reaction is delayed. The degree of conjunctival reaction should be noticed within twelve hours after the test and a careful record kept of its character and duration so as to compare with cutaneous test. If both these tests are negative at first they should be tried again in the same manner after three or four days. If the tests are still negative, and the observer has reason to suspect that the case, from its clinical appearance, is of tuberculous origin, the subcutaneous test should be used.

   (c) *Subcutaneous Test:* The patient should be in the hospital, or may be instructed (if intelligent enough) to take his own temperature at home. The temperature should be taken every two hours for two days prior to the injection. If it is found to be normal the test may be practiced according to the method of Koch. One mg. of old tuberculin first injected. If result is negative at the end of three days, 3 mg. may be used. If the result from this is negative at the end of three days a 5 mg. dose may be used. If this is negative one may assume that active tuberculosis does not exist. If result is positive a record of the temperature should be made every two hours and the character of the reaction described. Particular notice of the affected eye is important to see if a local reaction is present. This should be indicated by increased ciliary injection or an aggravation of the original trouble. Careful note should be taken also of the point of puncture, for reaction here is very delicate.

It is thought that the following diseases may be profitably studied by this method: Blepharitis, particularly chronic, ulcerative cases; chalazion; follicular conjunctivitis or adenoid hypertrophy of conjunctiva; phlyctenular disease of the conjunctiva and cornea; scrofulous pannus; interstitial keratitis (non-syphilitic); episcleritis; scleritis; sclerosing keratitis; chronic iritis and iridocyclitis when etiology is obscure (relapsing or recurrent forms are especially suspicious); uveitis with hyalitis; choroiditis.

If several observers are working in the same hospital, it would be convenient to have all cases of one kind assigned to one man in order to simplify the work. This, however, is a question of convenience. All the observers engaged in this work are supposed to use in their tests tuberculin from one factory, that of H. M. Alexander & Co. It is hoped that at the next meeting, as a result of this cooperative work, there may be something of interest to report.

WILLIAM H. WILDER, Chairman.

REPORT OF THE COMMITTEE ON COLLECTIVE INVESTIGATION CONCERNING THE OCULAR MUSCLES *

Almost immediately after the chairman of this committee was asked to undertake the work he associated two others with himself, Dr. Howard F. Hansell of Philadelphia, and Dr. Edward Jackson of Denver. The latter found it impossible to continue on the committee, and later his place was taken by Dr. T. B. Schneideman of Philadelphia.

The first step was to ascertain who were at all interested in such a study. Accordingly a circular letter was issued to each member of the Section on Ophthalmology. A copy of this letter is here appended as Exhibit A.

The total number of replies received to this was one hundred and twenty-five. It was gratifying to find that every member thus replying expressed approval of the effort, although forty found it impossible for various reasons to join in the study. An examination of these replies and certain considerations led the committee to decide that it was advisable to study several unanswered questions concerning the anatomy and physiology of the muscles, before attempting any cooperative investigation relating to their pathology.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Accordingly, a series of twenty-four questions was drawn up with considerable care, and different groups of the members were asked to investigate these different points. The letter explaining more in detail the scope and the general outline of the work, is also attached with this report, and is marked Exhibit B. Several of the members did not find the questions which were assigned to them entirely of their taste, and were accordingly asked to take other questions for study.

In making these arrangements, the committee has therefore sent out about 850 of the first circular letter and 85 of the second circular letter, and in addition has written thus far about 130 letters.

As a result, however, we have now over 80 members who are studying with more or less exactness these different questions concerning the anatomy and physiology. It is probable that a number finding that any real work demands time and patience will promptly give up the effort; but it is also probable that some will persevere, and we shall be able in this way to establish a certain few underlying facts. These, with other data which we already have, will give a broader and firmer foundation for any study of the pathology of the muscles, which may be elaborated by members of our section or by others in the future.

EXHIBIT A

AMERICAN MEDICAL ASSOCIATION

Section on Ophthalmology

COMMITTEE ON THE COLLECTIVE INVESTIGATION OF QUESTIONS CONCERNING THE OCULAR MUSCLES

183 DELAWARE AVE., BUFFALO, N. Y., December, 1908.

My Dear Doctor:—At the last session of the American Medical Association, Dr. Wilder, then the chairman of the Section on Ophthalmology, advocated the same system of collective investigation for that Section as had been adopted with advantage in other societies.

In acordance with that suggestion Dr. Alvin A. Hubbell, present chairman of the Section, has constituted the undersigned a committee for the collective investigation of questions concerning the ocular muscles. For the sake of uniformity this committee will not only select the question or questions for study, but arrange other details of the work. If sufficient interest is shown in the subject by members of the Section, various phases of different questions could be studied by different subcommittees. In any case, however, the results obtained by each individual would be kept separate. The object is not to deal with theories, but to collect FACTS, which are carefully observed and accurately recorded. As every ophthalmologist meets daily with unsolved problems concerning the muscles, perhaps some data can ultimately be obtained which would be useful to all, without great effort on the part of any one.

The committee hopes to keep the bibliography of the subject complete, and to make it useful to students whether they cooperate in this investigation or not.

The Section will probably confirm the action of the Chairman in making permanent these committees on special investigation. If that is not done, the work could continue just the same, and if the results are of any value, ample opportunity would be afforded for publication.

Instead of confining the effort to a few, it seems best to issue this circular letter inviting the cooperation of every one in the Section. Among the younger members, especially, there are probably many who have not only the time and energy, but the training necessary for such work.

If, therefore, you are sufficiently interested to cooperate, even to a slight extent, please answer the following questions, and mail them in the enclosed envelope before the middle of December.

LUCIEN HOWE, Buffalo N. Y.
HOWARD F. HANSELL, Philadelphia.
EDWARD JACKSON, Denver.

1. Do you care to take any part in the proposed collective investigation of some question concerning the ocular muscles?
2. What suggestion have you to make if any, as to which aspect of the subject could be studied first to best advantage?
3. Have you any preference as to exactly which part of that question or any other you would like to have assigned to you?
4. Have you opportunities for work if desired, in some well-equipped laboratory? If so, is that physiologic, pathologic, ophthalmologic or of what kind?
5. Are you connected with any hospital or dispensary?
6. Have you access to a good medical library, or can you obtain books through some incorporated library, from the library of the Surgeon-General?
7. Have you an easy reading knowledge of German or French or both?

Name and Address.....

EXHIBIT B

AMERICAN MEDICAL ASSOCIATION

Section on Ophthalmology

COMMITTEE ON THE COLLECTIVE INVESTIGATION OF QUESTIONS CONCERNING THE OCULAR MUSCLES

183 DELAWARE AVE., BUFFALO, N. Y., January, 1909.

My Dear Doctor:—The committee on the investigation of questions concerning the ocular muscles wishes to acknowledge your reply, and that of many others, offering to cooperate in the proposed study.

The nature of these replies, with other considerations, have convinced the committee that it would be worse than useless to attempt to deal with phases of pathology or treatment, until we can first agree on certain propositions, still doubtful, concerning anatomy and physiology.

The following general plan has therefore been adopted, for the beginning:

1. A given question will be placed, if possible, in the hands of some colleague who has already studied it, or who has expressed a desire to study it.

2. Each colleague is expected to obtain cooperation from others, physiologists, chemists—any one, anywhere—only being certain that apparent facts are really facts, accurately observed and carefully recorded.

3. In physiologic experiments the term "normal eyes" will be understood as those whose manifest ametropia does not exceed 0.05 D., whose proximate point is in proportion to the age, the individual being in good health and entirely free from asthenopic symptoms.

Experience has shown that it is most convenient for a student of these questions to use his own eyes for experiment, if they are sufficiently near the normal type; if not, the eyes of some member of his household. Typical subjects for study can usually be found among soldiers (including members of the National Guard), or others who lead an out-of-door life.

4. For the sake of uniformity each subcommittee or individual is expected to report to the central committee, if requested, two or three times a year concerning the progress made.

5. As accuracy and truth are the prime considerations, it is not desirable to hurry to conclusions. But if a given piece of work in the hands of a subcommittee or of an individual lags unnecessarily, some one else will be invited to study that question.

6. A colleague can feel free to publish his work anywhere and at any time. But if it is to form a part of any report formulated by this central committee, then

A. The article must be in the hands of this committee at least four months before a meeting of this Section.

B. If it has been already published, only a brief abstract would be made of it—sufficient to show its value as a link in the chain of facts.

C. If it has not been already published, an abstract will also be made, but the communication, with abbreviations, if necessary, would be referred to the committee on publication, in order that it may form part of the Transactions of the Section.

7. The central committee, if requested to do so, will furnish references to the bibliography of the questions proposed by them.

If you wish to join in this investigation will you please inform the chairman of this committee before the — of January whether:

A. You will accept the suggestion to study the question given below; or

B. If you prefer some other question, please state what it is.

The central committee appreciates that many who promptly accepted the invitation expecting to make clinical observations, will not care to study first anatomy or physiology. The cooperation of such colleagues must therefore be deferred or unfortunately lost entirely.

But the favorable replies to the first circular letter have been sufficiently numerous, and from men of sufficient standing, to warrant the hope that those who do cooperate will be well repaid by the satisfaction of contributing a little to our knowledge, and by the honor of being connected with a work which may ultimately prove of some credit to American ophthalmology. Truly yours,

THE COMMITTEE,
LUCIEN HOWE, Buffalo.
HOWARD F. HANSELL, Philadelphia.
T. B. SCHNEIDEMAN, Philadelphia.

REPORT OF THE COMMITTEE OF REVISION OF THE UNITED STATES PHARMACOPEIA *

To the Chairman and Members:—Your committee takes pleasure in presenting the following report on the revision of the United States Pharmacopeia. Perambulatory, it may be remarked that the committee has restricted its work to such drugs as are generically termed "dental remedies."

PROPOSED ADDITIONS

General Anesthetics: Nitrous oxid gas in its pure state or combined with oxygen is by far the most used general anesthetic in dental surgery. On account of its relative safety and quick action, it is especially adopted for those cases of minor surgery in which a general anesthetic is indicated Liquid nitrous oxid gas and liquid oxygen are recommended for adoption in the U. S. P. Recently, various mixtures of general anesthetics which are principally composed of ethyl chlorid, methyl chlorid and ethyl bromid have been freely discussed in current dental literature. These mixtures are not recommended for admission to the U. S. P., as they offer no material advantage over pure ethyl chlorid. The latter drug has been admitted to the eighth decennial revision of the Pharmacopeia.

Local Anesthetics: Ever since the introduction of cocain as a local anesthetic, chemists have been busy looking for substitutes to overcome the many side-effects of cocain as pointed out to them by the clinicians. Of the many substitutes offered, the following are the most important ones: Alypin, anesthesin, the eucains, holocain, novocain, the orthoforms, stovain, tropacocain and chlorbutanol (chloretone). After a careful investigation of these various products, novocain (see New and Nonofficial Remedies) seems best suited for anesthetic purposes in dental surgery. It is five or six times less poisonous than cocain, absolutely non-irritating to the tissues and of an equal anesthetic power when combined with the alkaloid of the suprarenal capsule. For external application the orthoforms deserve to be recommended. On account of the relatively low poisonous nature of novocain, the latter may be successfully used as a substitute of the orthoforms. Novocain is to be recommended for admission to the U. S. P.

The addition of the alkaloid of the suprarenal capsule to local anesthetics has placed the administration of these latter chemicals on a comparatively safe basis. According to modern conception, rational local anesthetization of the oral tissues is safely and effectively accomplished by the combined action of the anesthetic and of an agent which produces local anemia. The alkaloid of the suprarenal gland is eminently suited for this purpose. Recently, a synthetic product has been introduced as a substitute of the natural alkaloid of the suprarenal capsule. The admission of the alkaloid of the suprarenal capsule or its synthetic substitute and their solutions is to be recommended to the U. S. P.

The Antiseptics: Among the modern organic metallic salts used as antiseptics, the silver compounds occupy a prominent place. Of the many preparations, only two are mentioned here, for the reason that they have shown real merit and that they are apparently more in general favor than the balance. They are protargol and argyrol. One or the other of these preparations is recommended for admission, the selection is left to the discretion of the proper committee of the revision of the U. S. P.

Among the many new compounds which evolve nascent oxygen, magnesium dioxid and sodium perborate deserve to be mentioned. Magnesium dioxid may be advantageously added as an antiseptic to tooth powders. Its advantage over other oxygen compounds (calcium or strontium dioxid, etc.) is obvious. Sodium perborate, when dissolved in water, furnishes an alkaline solution of hydrogen dioxid of a fairly reliable strength (with limitations).

Recently a stable 30 per cent. solution of hydrogen dioxid has been introduced under the name of perhydrol (see New and Nonofficial Remedies). It is free from acid and may be mixed with water in all proportions. For dental purposes, it is far superior to the concentrated ethereal solution of hydrogen dioxid and is comparatively free from danger. It is especially serviceable as a bleaching agent and as a caustic. Magnesium dioxid and perhydrol are recommended for admission to the U. S. P.

Trioxymethylen, a polymerized form of formaldehyd gas (see New and Nonofficial Remedies), has been employed in operative dentistry with so many gratifying results that it deserves to be recommended for admission to the U. S. P.

Soap solutions containing formaldehyd gas in definite quantities have been largely used as hand and instrument disinfectants and have proven to be very efficacious. These solutions have certain advantages over other solutions which are used for this purpose, viz., the compound cresol solution, as being comparatively odorless. A solution of this nature corresponding to veroform (see New and Nonofficial Remedies) deserve to be recommended for admission to the U. S. P.

The eighth decennial revision of the Pharmacopeia has admitted a preparation known as Liquor Antisepticus, apparently as a substitute for the many proprietary preparations of a similar nature. The taste of the official preparation is unpleasant, and, as taste is a very important item in regard to the continuous use of an oral antiseptic by the patient, the composition of the preparation should be changed. Your committee recommends that Liquor Antisepticus should be omitted from future editions of the Pharmacopeia and that an improved preparation should be added to the National Formulary, where it rightly belongs.

Styptics: The surgical treatment of dental hemorrhage does not differ from that which occurs in any other accessible part of the body. Nevertheless, we meet with cases in which the use of styptics is indicated. For such purposes, cotarnin hydrochlorid (stypticin) and cotarnin phthalate (styptol) (see New and Nonofficial Remedies) have proven to be of good service. These remedies are certainly superior to any other styptic to be found in the present Pharmacopeia and either one of these compounds deserves to be recommended for admission to the U. S. P.

Antipyretics and Antineuralgics: Of the many compounds which have been advocated as antipyretics and antineuralgics, acetylsalicylic acid, known as aspirin (see Notes on New and Nonofficial Remedies) deserves to be recommended for admission to the U. S. P.

Analeptics: A useful restorative agent in cases of collapse, syncope, etc., is validol, either alone or as validol camphorate, *i. e.*, a solution of 10 per cent. camphor in validol. (See New and Nonofficial Remedies.) Its usefulness has been frequently tested and it deserves to be recommended for admission to the U. S. P.

PROPOSED CHANGES

Shorter titles or synonyms should be given to the following drugs: Acetphenetidin, hexamethylenamin, sulphonethylmethan and sulphonmethan.

Your committee further recommends the adoption of the following resolution by this Section:

WHEREAS, the Section on Stomatology of the American Medical Association is taking special interest in the Revision of the Pharmacopeia of the United States, and,

WHEREAS, at present no provision is made for representation of the dental profession of the United States in the United States Pharmacopeial Convention, therefore be it

Resolved, that the Section of Stomatology of the American Medical Association should be entitled to one delegate who represents this body on the Committee of the Revision of the United States Pharmacopeia.

Respectfully submitted,

HERMANN PRINZ, Chairman.

Thyroid Administration in Children.—L. Williams, in the *British Journal of Children's Diseases*, June, 1909, states that as thyroid insufficiency is characterized by a subnormal temperature and sensations of chilliness, it might be expected that thyroid excess would be accompanied by a supernormal temperature and intolerance of heat; and such is the clinical fact. Experience has taught him when giving thyroid extract to children over considerable periods of time that the thermometer is as necessary a guide as the weighing machine. So long as the subnormal readings persist, the drug may be continued; as soon, however, as the temperature reaches normal, caution is necessary; and at the first indication of a rise beyond normal, the drug may be suspended.

* Read in the Section on Stomatology of the American Medical Association, at the Sixtieth Annual Session, at Atlantic City, June, 1909.

Clinical Notes

STAPHYLOCOCCUS VACCINE IN INFLAMMATORY CONDITIONS OF THE GENITO-URINARY ORGANS *

W. M. ROBERTSON, M.D.
ST. LOUIS

My attention was called to the staphylococcus vaccine by the following case:

CASE 1.—*History.*—Mr. N. was referred to me in May, 1908, by Dr. M. B. Clopton. The patient was 18 years old, and had never had any venereal disease until the preceding November, when he contracted gonorrhea. From the time the disease first manifested itself, he had been treated by men both in St. Louis and New York City, who are well-known to be capable of treating such diseases. When I first saw him there was a profuse purulent discharge containing gonococci from the urethra; the first, second and third glasses of urine were so cloudy as to be termed milky; the prostate was enlarged, soft, sensitive on pressure and the expressed secretion contained only pus. There was present some frequency and urgency of urination.

Treatment.—I treated the patient for about three months according to the well recognized methods of treating such conditions, but met with no better success than had my colleagues who had previously treated him. So far as I could see there was absolutely no improvement in his condition, and I began to despair of being able to do anything for him. About this time he developed a suppurative folliculitis of the bearded portion of his face for the treatment of which he was referred to Dr. M. F. Engman. Ten days later, after having treated him to no avail for three months, and without any change in treatment, there was a marked improvement in his condition. In three weeks the urine was clear and in six weeks the patient was entirely well.

In speaking with Dr. Engman about the case, he told me that he had been giving the patient injections of staphylococcus vaccine. It then occurred to me that in these rebellious and obstinate infections of the prostate and bladder we have to deal, perhaps, with a staphylococcus and not a gonococcus infection; that while the gonococcus was the cause of the original infection after a time it lost its virulence and left to the staphylococcus the task of keeping up the disturbance which it had begun. This supposition was further strengthened by the fact that, while the gonococcus vaccine has been given an extensive trial in these conditions, few observers make for it any claim as a curative agent. Acting on this belief, I obtained staphylococcus vaccine to carry out my investigations.

At this time I had under treatment, or, more correctly speaking, under observation, at the genitourinary clinic of the Washington University the following patient:

CASE 2.—*History.*—J. D., aged 20, laborer, contracted gonorrhea about one year ago, and was "cured" in four weeks. Three weeks ago, following some dissipation, but not having indulged in intercourse, the discharge again appeared. It became very profuse, but at the time when I saw him was slight and no gonococci could be found. Both glasses of urine were very cloudy; urination was frequent, painful, urgent and followed by much tenesmus. The prostate was much enlarged and painful and the secretion contained only pus. The patient was in destitute circumstances, his nights being spent in a box car or one of the city parks, and his meals were irregular and uncertain. His general condition was miserable, but on account of an ignorant prejudice he would not consent to go into a hospital.

* Read before the Medical Society of the City Hospital Alumni, June 3, 1909.

Treatment.—I gave him the best treatment I could under the circumstances, but after two weeks his condition remained unchanged. I then began giving him hypodermic injections of staphylococcus (albus) vaccine, all other treatment being discontinued. The further progress of his case is as follows:

On August 29 and 31 and September 2 and 7 respectively 1 c.c. staphylococcus (albus) vaccine was given. At the end of this time the patient felt well, had no pain and no disturbance with urination. First glass of urine was cloudy, the second was clear, the prostate much diminished in size, and was not very painful on pressure.

On September 12 and 16 respectively 1 c.c. of staphylococcus (albus) was given. At that time he had no pain, no discharge, no disturbance with urination, both glasses of urine were clear, prostate was normal in size but the expressed secretion contained much pus.

On September 20 1 c.c. staphylococcus vaccine was again given.

On October 5 the patient had not returned for treatment as he had been feeling perfectly well. The urine was clear, the canal was free, the prostate normal in size, shape and consistency, and the expressed secretion was normal.

CASE 3.—*History.*—E. D. first consulted me Oct. 15, 1908. He had contracted his first case of gonorrhea two months previously and on account of suppurative folliculitis had been in a hospital for two weeks. When I first saw him there was a slight discharge from the urethra containing gonococci; frequent urination, both glasses of urine being cloudy. The prostate was enlarged and the expressed secretion contained only pus. After having treated him for two weeks according to well-recognized methods of treating such diseases, his condition remained about the same. He then went away for a week and returned on November 7, complaining of pain in the right testicle and cord, pain in the back, frequent urination, in fact all the symptoms of impending epididymitis. He had to urinate every fifteen or thirty minutes and the urine was thick with pus. The prostate was enlarged and very sensitive.

Treatment,—I began the injections of staphylococcus vaccine, suspending all other treatment. After three injections, on November 7, 9 and 11 of 1 c.c. each, all of the subjective symptoms had disappeared. I then began prostatic massage and permanganate irrigations, injecting the staphylococcus vaccine every six days. This treatment was continued until December 21, when the patient was discharged cured.

CASE 4.—*History.*—E. R. had had one attack of gonorrhea five years previously. On Oct. 28, 1908, two days after sexual and alcoholic dissipation, he developed acute prostatitis. Urination every ten or fifteen minutes, pain, urine very cloudy, prostate much enlarged and very sensitive. No discharge from the urethra.

Treatment.—I advised rest, hot sitz baths, opium and belladonna suppositories, and santal oil. This treatment was continued until November 7, with some relief, but the patient was still in great pain. I then discontinued this line of treatment and on November 7, 9 and 11 gave him 1 c.c. of staphylococcus vaccine. After the third injection all symptoms disappeared as if by magic. I then began prostatic massage and irrigations, giving the staphylococcus injections once a week. The expressed prostatic secretion was at first thick, yellow pus, but after continuing this treatment until December 21 it became almost normal and the patient has had no further trouble.

CASE 5.—*History.*—F. D. first consulted me Jan. 4, 1909. He had contracted gonorrhea three weeks previously; first attack. When seen he had a profuse discharge containing gonococci, both glasses of urine cloudy, no disturbance with urination. He was treated by a hand injection of protargol and a preparation of santal oil. On January 23 he developed acute prostatitis. The prostate was enormously enlarged and very painful, urination every few minutes very painful and followed by much tenesmus. The discharge from the urethra had ceased.

Treatment.—Staphylococcus vaccine (1 c.c.) was administered, other treatment being discontinued. On January 25 1 c.c. staphylococcus vaccine was again injected. Condition about the same. Patient very uncomfortable. On January

28 1 c.c. staphylococcus vaccine injected. Patient felt much better; second glass of urine almost clear; had little pain. On February 2 staphylococcus vaccine, 1 c.c. The patient was perfectly comfortable, no pain, urination about normal. First glass of urine was slightly cloudy, second clear; prostate much reduced in size. Prostatic massage and irrigations were then begun, the staphylococcus vaccine being injected every five days. In two weeks both glasses of urine were clear, and with the exception of some pus in the expressed prostatic discharge, the patient seemed entirely well. On February 25 he was discharged cured.

CASE 6.—*History.*—Mc. E. contracted gonorrhea three years before he consulted me, Feb. 8, 1909. He had been subject to frequent recurrences of gonorrhea and occasional attacks of acute prostatitis. He was a traveling salesman and had a physician in almost every town in several states. I had treated him a year previous for three weeks for an aggravated case of acute prostatitis with only indifferent success. When he returned to me this time he was in about the same condition as when I first saw him. No discharge from the urethra, urination every few minutes and very painful, prostate enlarged, painful and very sensitive on pressure.

Treatment.—I gave him three injections of staphylococcus vaccine, 1 c.c. each, giving the injections every other day. Two days after the last injection, the urine was perfectly clear, the first glass only containing a few shreds. Urination was normal and the patient felt perfectly well. The prostate was much reduced in size and there was little pain on pressure. The patient then left St. Louis and I know nothing further of the progress of the case.

I could report many similar cases, but the record of cases becomes tedious and, to my mind, does not prove as much as does the opinion of the observer as to the efficacy of a certain remedy. I have used staphylococcus vaccine in twenty cases of acute prostatitis and cystitis in which there had been a history of gonorrheal infection dating back from a few weeks to many years, and have not yet met with a case in which the subjective symptoms have not been relieved after the third injection, these injections being given every other day. If continued every five or seven days, with other appropriate treatment, my cases have gone on to complete recovery with surprising rapidity. I have used these injections along with other treatment in cases in which the only symptoms were pus in the expressed prostatic secretion and recurrence of the urethral discharge following dissipation or sexual excesses. I am uncertain as to their efficacy in these cases, but my experience leads me to believe that they are worthy of further investigation.

I have used them in cases of lesions of the spinal cord and in cases of senile hypertrophy of the prostate in which either retained and decomposed urine, or instrumentation or both had caused troublesome bladder symptoms. In these cases where the infection was due to the staphylococcus, as it has been in many cases which have come under my observation, the result has been gratifying to both myself and the patient.

In one case of tabes of fifteen years' duration with an old chronic inflammation of the bladder, which I saw in consultation with Dr. Given Campbell, recurring chills followed by high temperature, the general condition of the patient, and the condition of the urine indicated an ascending suppurative renal affection. The improvement following the injections of the staphylococcus vaccine was so prompt and so marked that I am undecided whether to attribute it to the injections, to a mistaken diagnosis or to chance. At any rate, after having been confined to his bed most of the time for seven weeks and presenting at this time every symptom and indication of a marked septic condition, nine days after the first injection was given, the patient's condition was such that we felt justified in allowing him to undertake a European journey. After the first injection, there were no more chills, and no more fever, and at the end of a week there was a marked improvement in the condition of the urine.

I have used them in one case of incipient renal tuberculosis in a patient who, with Dr. C. Fisch, I am treating with tuberculin injections and in which there was a marked staphylococcus infection. The ordinary urinary antiseptics aggravated the condition and I began injections of the staphylococcus vaccine. In less than a month Dr. Fisch reported a marked improvement in the urine, but whether this was due to the staphylococcus or the tuberculin, or either, I do not know.

It is my custom to give the injections every other day for three injections. I then give them every five or seven days as long as they seem to be indicated. I have used only the *Staphylococcus albus,* using at each injection 1 c.c., which represents 400,000,000 bacteria. I have given several hundred injections. I have never had an abscess following them, nor have I had a patient complain of pain or any bad after-effects.

I hope that I am not overenthusiastic over the results which I have obtained by the use of staphylococcus vaccine. Acute inflammation occurring in cases in which an old gonorrheal infection existed may show the gonococcus or may not, but the staphylococcus is always present and, while the gonococcus was the original cause of the infection, I believe that after preparing the soil it lost its virulence and left to the staphylococcus the task of keeping up the mischief. It is in this class of cases only that I make an unqualified claim for the staphylococcus vaccine. In the other conditions in which I have used it, the small number of cases or other circumstances have prevented me from forming a positive opinion.

Humboldt Building.

A LIGATURE-CARRIER

CHARLES B. REYNOLDS, M.D.
PHILADELPHIA

The ligature-carrier here illustrated I have devised for ligations of the broad ligaments and deep pelvic vessels especially. The instrument is nine inches long and composed of two pieces, with a deep curve, each containing one-half of the eye of the needle. The handle is large, of the ratchet type, and contains a strong spring.

A new ligature-carrier.

The ligature material is threaded through the eye of the needle, which is passed beneath the vessels or ligament to be ligated; the ligature is grasped with the fingers or forceps, the handle compressed and the halves of the needle forced apart by the spring and withdrawn. This obviates the difficulty of drawing the ligature through the eye, as in the old-style pedicle needle. Any ligature material may be used without danger of cutting it.

2003 Diamond Street.

HAND CRUSHED: INFECTED WITH GAS BACILLUS OF MALIGNANT EDEMA

AMPUTATION OF FOREARM: RECOVERY *

G. PAUL LAROQUE, M.D.
RICHMOND, VA.

Were it not for the fact that the patient recovered from an infection which is alleged to be almost uniformly fatal, a single case report of an extremely rare infection would scarcely be worth while. On account of the fact, however, that patients infected by the so-called gas-producing bacillus of malignant edema nearly always die, even after the most radical and high amputations, a case of recovery following conservative treatment should be recorded.

Until the present case came under my observation I had seen only one case. This occurred in the practice of my former chief, Dr. Edward Martin, of Philadelphia. The patient was a young woman who suffered a compound fracture of the ankle and died within three days in spite of amputation at the hip joint. Another case occurred in the University Hospital in Philadelphia a short time before my period of service as resident surgeon in that institution, and this patient died in spite of high amputation. The following case is the only one I have heard of in Virginia in which the organism was demonstrated bacteriologically:

Injury.—R. C., a colored man, aged 32, while engaged in shucking corn with a machine on a farm about ten miles from Richmond, suffered a severe crushing of the left hand. He was at once referred by Dr. W. A. Campbell to Dr. Stuart McGuire's clinic at the Virginia Hospital. On examination of the injury by the resident surgeon, Dr. W. D. Carr, it was obvious that, on account of the extensive injury of the hand and wrist, amputation was indicated. I saw the patient about 8 p. m. of the day of admission. There was extensive mutilation of all the soft parts and bones of the hand and wrist and the tissues injured had already become black and obviously gangrenous. There was the characteristic gangrenous odor, and the hand and soft parts were infiltrated with gas to about two inches above the wrist. A diagnosis of gas-bacillus infection was at once made. A smear from the injured hand, examined microscopically by Dr. Guy Hopkins and Dr. G. H. Baerecke, showed the characteristic organism of malignant edema, together with some mixed infection.

Treatment.—Amputation of the middle of the forearm was at once performed by the resident surgeons, Drs. Carr and Booker, under my instruction. The next day the stump appeared black in color and a foul odor was emitted. Some of the bloody discharge from the stump was examined microscopically and the bacillus of malignant edema was found to be present. This caused us immediate alarm, and we at once took into consideration higher amputation. The patient's temperature was 103, pulse 120. In order to determine whether or not the infection was limited to the stump or whether it was being conveyed into the general circulation, we secured blood from the regional veins leading from the stump and also from the veins of the opposite elbow. Both of these specimens were submitted to the bacteriologists for examination, and in neither specimen was the organism present. Believing that consultation should always be held before any amputation is done, I called Dr. W. Lowndes Peple to see the patient. After discussing the matter for about half an hour, we concluded that, inasmuch as the patient's general condition was good and the local condition of the arm above the stump was good, higher amputation would not be justifiable. We therefore removed all the stitches and left the wound wide open to be treated with antiseptics and oxidizing agents, since it is a well-known fact that these organisms do not live in the presence of oxygen. Local applications of hydrogen peroxid, potassium permanganate and oil of turpentine were made to the raw surface and the stump enveloped with a dressing wet with 1 per cent. solution of chloral hydrate. The next day we made another examination of the blood leading from the stump and found it sterile. Two days later smears were made of the discharge from the stump and the bacillus of malignant edema was not to be found. The patient's condition remained good and recovery ensued as soon as could have been expected from a suppurating wound.

219 East Grace street.

* Reported at the Richmond Academy of Medicine and Surgery, January, 1909.

EXFOLIATIVE NEONATAL DERMATITIS

J. C. MATTHEWS, M.D.
SPRINGFIELD, MO.

The object in reporting this case, which might be termed dermatitis exfoliativa prenatal rather than neonatal, is to call attention to the undoubted development of this disease, or condition *in utero*.

Ritter, in 1878, was the first to call definite attention to this condition; but in all cases reported by him and others since that time I failed to find a case reported as existing at birth. From two to five weeks after birth is given as the usual time of development of symptoms.

Patient.—Baby R., male, was born at term, Feb. 8, 1909; normal labor; weight was 6½ pounds; the child was well-developed and seemingly of good vitality, as he breathed and cried well.

Condition at Birth.—When the arms and hands were delivered I noticed an unusual condition of hands, and on careful inspection of child, after delivery, I discovered that the hands and feet were denuded of epidermis. This condition included the fingers and toes, except their tips, and back to the wrists and ankles. The nose, penis and margin of umbilicus were also denuded, appearing dark red, not unlike a burn of the second degree caused by steam or hot water. The lesions were exuding serum as would a burn, and shreds of cuticle were hanging at the margins.

Treatment and Course of Disease.—The child was dressed and put to breast, which it nursed in a normal way. The raw surfaces were dressed with boric acid and sweet oil. On February 9 I saw the child in company with Dr. Anderson; we found it in a weakened condition, its face pinched and drawn, the clothing and bandages saturated with serum, and with some bleeding from the nose and margin of the umbilicus. We also found, on dressing it, that the exfoliation had extended up the arms and legs for from one to one and a half inches, and in pockets under the cuticle a clear serum similar to a blister caused by a burn was found. During the past twenty-four hours the child had nursed a little, bowels had acted, urine had been voided, and the child had cried a great deal. Temperature was 97 in the rectum.

February 10: The child was much weakened, it had not nursed since the last visit. The clothing and bandages were saturated and stiff with serum and blood; the surface of the body was cold, skin was pale and wrinkled; breathing was shallow. The heart sounds were weak, and attempts to cry produced only a weak moan.

During the night the child died. No postmortem examination was made.

History of Parents.—The mother was a decided blond, well developed, weight 118 pounds, age 18. This was her first child. Labor and recovery were normal. History of herself and parents was good, though she sunburns easily. The father is a medium blond, aged 21, healthy and hearty; weight 145 pounds. There is no history of syphilis or hereditary disease on either side.

Purity and Digestibility of Foods.—"The first requisite which we should make for foods for invalids is that they should be pure. The next most important thing is to find a pure food which the invalid can digest."—H. W. Wiley in the *New York Medical Journal.*

Therapeutics

DIET IN TYPHOID FEVER

It seems almost impossible to settle this much discussed subject definitely, and it is doubtful if it ever will be determined that any one diet is the only correct one for typhoid fever. The patient, his dietary habit, and his ability to digest certain foods during typhoid fever must all be individualized. Therefore, a diet correct for one patient may be absolutely incorrect for another.

The recommended diets vary from nothing but water, or no diet, through absolute milk, entire absence of milk, liquid foods other than milk, cereal foods, to actual solid foods, including meat.

The diet in typhoid fever should never be discussed without due consideration of the management of the bowels. This means whether diarrhea should be allowed, whether laxatives should be given, or whether constipation should be caused.

In the first day or two of the fever the temperature is likely to be higher than it is on the days that immediately follow. This temperature is lowered, the tongue improved, and the patient made generally better by free purging, and a diet of little more than plenty of plain water. The purgative selected may be calomel, or may be castor oil administered in some pleasant form. Such a purgative may be repeated in two or three days if deemed advisable. There can be no question that a clean alimentary canal modifies greatly the severity of the early typhoid symptoms.

It has been lately shown that fecal deposits, seeds or other food débris may become lodged in the lower corner of the ascending colon, the cecum, and may cause inflammation or symptoms of appendicitis, and may even be a subsequent cause of appendicitis. Hence it may be found to be good treatment, in the first few days of typhoid fever, to give colon enemas of from one to two quarts of warm water, the patient lying on his right side, to aid in washing away the possible accumulations in the cecal region. Such colon washings can certainly do no harm in the first days of typhoid, and may be of marked benefit in the future course of the disease. In other words, the more thoroughly the pathologic process in the intestines, in typhoid fever, is considered from a surgical standpoint, with the aim to keep these ulcers and the inflamed intestinal mucosa as clean as possible, the less will there be secondary infection, the less will there be tympanites, the less will there be deep ulcerations, hemorrhages and perforations, the less high the fever, and the better the whole prognosis. Consequently, not only should the bowels be cleared at first, but subsequently the bowels should be moved daily. This is best done by administering every other day some gently acting saline laxative, which cleans the upper part of the intestines, tends to drain the portal circulation, to keep the liver, our Pasteur filter, in a healthy condition, and to cause an easy watery movement. Any tendency to a diarrheal condition or to too many movements from such a laxative may be stopped by the administration of 1/10 grain of morphin. The bowels are thus cleaned and subsequent excessive peristalsis inhibited, and the patient is generally at rest for the remainder of the day. On the alternate day a small glycerin enema, administered with a glass syringe, consisting of a tablespoonful of glycerin and a tablespoonful of water, will cause within ten minutes a movement of the bowels that will at least empty the descending colon and cause the expulsion of gas. Such management of the bowels seems contraindicated only by intestinal hemorrhage, signs of perforation and great prostration. Such treatment also prevents secondary infections that keep the temperature high. In other words, less antipyretic measures are needed, if the abdomen is flat, tympanites is not present, and the patient's bowels have moved daily artificially, and the movements are not caused by diarrhea due to irritation from the disease.

The fact should be emphasized that tympanites is not a symptom of typhoid fever, but is a symptom of mismanagement, a symptom of a mistake either in the diet or in the management of the bowels. Tympanites not being present, the danger from hemorrhage and perforation is reduced to a minimum. If the patient's bowels are properly managed in typhoid, tympanites will rarely occur.

As above stated, the exact diet that is best for the individual typhoid patient must be determined by his ability to digest, by the height of the temperature, by the behavior of the stomach (i. e., whether there is distress, nausea, or vomiting), by the amount of intestinal flatulence, and somewhat by the character of the stools. Any food, however advantageous theoretically, or however satisfactory for other patients, is contraindicated if it causes indigestion in any form, or is not digested. Theoretically, the food that causes the least mass of intestinal débris would be indicated on account of the less likelihood of food that is almost entirely digested in the upper alimentary tract forming a favorable medium and mechanical protection for pathogenic germs in the lower intestine. For this reason large amounts of milk would seem to be contraindicated, and certainly the all-milk diet is not the best for most patients who have typhoid fever. On the other hand, milk is too good, simple and generally well-digested a food for its use to be condemned in this disease. A solid diet as advocated by some, also, seems generally inadvisable. When it is considered that both high temperature and nervous disturbance caused by the disease, and also the general depression of the system, cause an interference with the production of normal gastric juice, food that requires normal conditions for digestion would seem to be contraindicated. Therefore, ordinarily a mixed diet representing the different elements of nutrition needed to protect the system against drain and loss and consequent unnecessary debility, the so-called typhoid state, and a diet that is varied sufficiently to prevent the patient from dreading the feeding hour is the one indicated. Any nutrient that is abhorrent to the patient should not be administered, as it is well understood that the digestive secretions are not produced so well when the patient dislikes, or is disgusted by, a food.

A good mixed diet for twenty-four hours, suitable for an ordinary adult ill with typhoid fever, is represented by one pint of milk; two eggs, or the whites of three eggs; one cup of thoroughly cooked, thin oatmeal gruel; the juice expressed from a pound of chopped, round steak; a small cup of coffee, in the morning; a small portion of wine, orange, or lemon jelly made from gelatin; and enough salt and sugar in the above to make them palatable.

The milk may be administered, hot or cold, with or without salt, with or without Vichy, with or without lime water, in two or three doses, as deemed best in the individual instance. Sometimes koumys makes a valuable substitute for ordinary milk. Sometimes buttermilk may be used, and this in larger quantities.

The eggs may be given raw, beat up with a little milk, or given with lemon juice on cracked ice, may be poached, or, if the temperature is not high, soft boiled or in the form of boiled custard.

The oatmeal gruel should generally be made with milk, and thoroughly cooked, strained, and salted to suit the taste.

Meat juice is best prepared by just covering the chopped steak with water, and allowing it to stand for an hour and a half. The water and juices are then expressed out of the meat. This watery extract will then contain, besides the blood of the meat, actual muscle serum, which is a decided tonic, especially to the heart. This expressed fluid is then kept on the ice and administered, properly salted, in two or three doses.

While gelatin is generally pleasant to most patients, it also has some nutritive value, and possibly tends to aid normal coagulation of the blood, and perhaps prevent capillary bleedings from the inflamed intestines.

A patient who is accustomed to his morning coffee need not be deprived of that pleasure because he has typhoid fever, unless there are meningeal symptoms, or meningitis is actually present.

If for any reason it seems inadvisable to administer meat juices to typhoid patients, and surely, if the patient is anemic, one or two doses of iron in the twenty-four hours should be given. The iron may be administered in five-drop doses of the tincture of the chlorid, in lemonade, once or twice in twenty-four hours; or a three-grain saccharated oxid of iron tablet (*Eisenzucker*) once or twice a day, or a capsule containing three grains of carbonate of iron, or reduced iron, may be administered once or twice a day.

The constant object in mind should be to administer protein (meat, eggs, milk), carbohydrate (oatmeal, sugars, or something similar), alcohol if deemed advisable, a mild cerebral stimulant (coffee or tea if thought advisable), iron, calcium (gelatin or lime water), sodium chlorid (perhaps dilute hydrochloric acid later), and water, enough of all to keep the physiologic processes as near normal as possible, while the patient is going through the long, tedious, feverish illness.

Experience seems to teach that it is best to administer nutriment to the typhoid patient in small amounts at three-hour intervals. It should, however, be arranged that the patient has normal rest. In other words, he should not be awakened from a comfortable sleep because it is time to do something to him or for him, and at regular three-hour feeding intervals should be the periods at which he is to be disturbed for other treatments. During the night, if he is not seriously ill, he should not be disturbed as often as every three hours.

With the treatment outlined, and with proper care of the mouth, the patient's tongue is rarely badly coated and should be moist, there should be no nausea, and there should be no tympanites.

The question that constantly arises in conjunction with the nutrition in typhoid fever is of what value are the so-called intestinal or bowel antiseptics. It is certain that the lower part of the small intestine can not be rendered aseptic. It is also just as certain that the stomach and a short distance at least of the small intestine may be made uninhabitable for pathogenic germs, without poisoning the patient. Perhaps the best stomach antiseptic is gastric juice, containing its normal amount of hydrochloric acid. If the hydrochloric acid is insufficient, pathologic germs may be present in the stomach, and certainly are likely to be present in the duodenum. Therefore, if it is considered in typhoid fever, at any period, that the hydrochloric acid is insufficient, a few drops of the dilute acid may be administered several times a day. If sodium chlorid is normally supplied to the patient, except possibly in the latter part of the fever, the hydrochloric acid is probably normally present, and except for the advantage of compelling the patient to drink more acidulated water, the necessity of administering hydrochloric acid is perhaps doubtful. Certainly a too acid stomach is not desirable.

Various preparations have been offered for intestinal antisepsis which contain an extra molecule of oxygen, or are really peroxid preparations. These are also taken with large quantities of water and probably do a great deal of good.

The best antiseptic to the upper part of the intestines seems to be salicylic acid in some form, and one of the best forms is the combination with phenol, viz., phenyl salicylate (salol), which may be given in capsules without any disturbance of the stomach, as it is there undissolved and breaks up into its component parts of salicylic acid and phenol in the duodenum. A small dose of this drug (0.25 gram or 4 grains) every six hours may be given continuously through the disease, unless there is a diminished excretion of urine, or albuminuria develops, or the urine shows darkening from the phenol, which would be very rare from this sized dose. Even the non-believers in bowel antiseptics must admit that whether the colon bacilli or typhoid bacilli come to the upper part of the intestine by migration, or reach these regions through the blood stream, that it would not be so healthy for them provided salicylic acid was present in the upper intestine as though it were not present.

How good a bowel antiseptic hexamethylenamin (urotropin) is has not been determined, but in post-typhoid conditions when typhoid bacilli or colon bacilli may be present in the pelvis of the kidney or may be present in the gall bladder, it has been shown that administration of hexamethylenamin is the best treatment to prevent their remaining permanently and causing inflammation in these regions.

Thus far sour milk treatments, lactic acid germs and the administration of yeast have not been mentioned. Certainly bowel infections of most kinds are made better by the administration of yeast. The value of sour milk treatments in typhoid fever must be determined by experience. A patient, however, who is not doing well on the diet above suggested should be put on the sour milk treatment. One of the principal objections to such treatment is that the patient's stomach soon objects to any one diet that is to be long continued, although for a few days he might accept the soured milk. On the other hand, most patients do not object to the sour drink produced either by a tablespoonful of upper brewer's yeast in a glass of water, or by the solution of a five-eighths inch cube of a compressed yeast cake in a glass of water, given two or three times a day.

Portable Shower Baths.—A simple way of providing shower baths for the multitude has been in operation in Baltimore. On open lots tents were divided by cloth into sections for towel-room, waiting-room, dressing-room, and several bath compartments. There was a wooden floor and a wood frame carrying water-pipes and shower-heads with regulating valves within the reach of the bather. Drainage was provided to the street gutter. This outfit cost about $150. It could be maintained for $25 a week, including two men attendants. Later, portable wooden bath houses covered with galvanized iron were used, and hot water supplied from a small coal stove with a water jacket and a tank.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[*For other information see second page following reading matter*]

SATURDAY, SEPTEMBER 4, 1908

USING THE DAYLIGHT

Human nature has a curious tendency, once started in a wrong direction, to continue by inertia until something untoward turns up to modify the tendency or until some definite movement is organized to prevent further progress that may be serious. There are many illustrations of this principle, though perhaps the well-known tendency of the so-called middle C of the musical scale furnishes the best known example. Theoretically this should have 256 double vibrations a second. Instruments were gradually tuned higher and higher, however, making it more and more difficult for the human voice to reach notes that had been reached with comparative ease before, until a definite movement was organized to prevent further heightening and even then the tendency was not entirely overcome. We are in something of the same condition of affairs as regards light as is thus illustrated in sound. When illumination was poor, people went to bed shortly after nightfall and arose at daybreak. As illumination has become better, they have gone to bed later and later, especially in the cities; and the hour of rising has grown later until, in the summer at least, many persons sleep as much during daylight as in the dark.

This is of course unfortunate. Sleep is never so restful—at least for most persons—during the hours of light as when it is dark. Everyone knows this from personal experience. The old saw was that two hours of sleep before midnight were worth twice that amount afterward; and while this may not be literally true, the truth in it is that if sufficient sleep is to be obtained after midnight, then much of it must be secured after darkness has ceased when sleep is not so beneficial. Everywhere one hears the complaint that people are becoming more nervous and are losing the power to rest thoroughly. Undoubtedly, some of this—probably much more than we suspect—is due to the fact that so much of sleep in city life where the increase in nervousness is particularly noticeable must under present conditions be obtained during hours of daylight. Even though most individuals do not get up, some of the workers must be about their duties, so that while the sleeper's eyes are disturbed by light, his ears are vexed by noises; and, though the light and sounds may not actually wake him, yet they make sleep a much less complete refreshment of tired organs.

There is excellent reason, then, for welcoming the movement of the National Daylight Association, which is endeavoring to secure, as we have noted[1], more daylight for work and more of the night for sleep. A practical method for the first step in this direction is outlined in the bill introduced into the British parliament, which proposes to set all the clocks of the kingdom forward an hour in May and to change back again in October.[2] A similar bill, as we have said,[1] is before the Canadian parliament and seems likely to become a law. The movement has attracted much less attention in this country, but it is needed here above all. Some time ago we deprecated the foundation of a day-and-night bank, open every hour of the twenty-four, because this made a definite precedent for the extension of business hours beyond the legitimate time. Men may apparently accomplish more work by crowding some hours of the night with it, but they draw drafts on time that are sure to be presented by Nature, often with no days of grace; and in the end it is probable that their actual capacity for business is shortened.

There are many reasons besides those that we have suggested why physicians should interest themselves in the new movement. Undoubtedly the ever-lengthening use of eyes under artificial light is the main cause for the growing number of people who must use spectacles at ever-earlier years. While a definite effort is still made in cities to send children to bed early, this is not nearly so successful as it used to be, and bedtime for them is advancing as for adults. This is one reason why more city children need spectacles and nerve tonics, for their sleep is even more likely to be disturbed by the light in the morning than that of their elders. In a word, we have very probably in this movement for prolonging the usefulness of daylight one of the most important hygienic ameliorations that can now be made for all classes of people. Doubtless the working classes would benefit even more than most others, because, while their fatigue requires them to go to bed early, the activity of life around them often seriously disturbs their sleep during the hours before midnight which should be so precious. Let us hope that so simple and efficient a means of lessening one of the unhygienic tendencies of our day will receive the consideration it deserves.

HEXAMETHYLENAMIN AS A PROPHYLACTIC

The knowledge that the gall-bladder may become a habitat for *B. typhosus* and account for "chronic bacillus-carriers" has stimulated considerable search for a drug which will disinfect the biliary passages. Studies of Mosler, Meder, and Vieillard have shown that certain substances like potassium iodid, sodium salicylate, and mercuric chlorid are excreted in the bile, but none is excreted in concentration sufficient to be serviceable.

1. THE JOURNAL A. M. A., July 31, 1909, lii, 383, 387.
2. THE JOURNAL A. M. A., July 25, 1908, li, 324, 328.

Crowe, in 1908, chose hexamethylenamin for his experiments because (1) of its known effect on typhoid bacilluria (Richardson; Churchman) and (2) of its easy recognition. Crowe's experiments on dogs showed that the drug, administered by mouth, was rapidly absorbed and remained in the circulating blood in recoverable amounts for twenty-four hours. He found it in the bile, secreted not only by the liver, but also, in even larger amounts, by the way of the gall-bladder itself.

Applying these results therapeutically in a number of human cases of postoperative biliary fistulas, he determined by careful bacteriologic and chemical study that, if the dose by mouth be large enough (75 grains per diem), the bile is rendered sufficiently antiseptic to inhibit the growth of bacteria. He then recommended its use (1) in acute infection of the gall-bladder, (2) as a prophylactic before gall-bladder operations, and (3) to lessen the occurrence of gallstones and also of chronic bacillus carriers after typhoid fever.

During his work Crowe demonstrated the presence of the drug in the bile, synovial fluid, saliva, pleural fluid, circulating blood, and cerebrospinal fluid in man after administration by mouth. Recently (1909) he has published the results of a series of experiments attempting to overcome artificial meningeal infections by hexamethylenamin. In forty experimental observations the animals received the drug before infection. Many survived, and the others lived longer than animals receiving it after inoculation, and much longer than the controls to which the drug had not been given.

In man he found the hexamethylenamin present in amounts sufficient markedly to inhibit the growth of organisms inoculated in the cerebrospinal fluid removed by lumbar puncture. In one case purulent meningitis from an infected cerebrospinal fistula cleared up under its use.

Apparently Crowe has thus shown that hexamethylenamin will do also for the cerebrospinal fluid what it has been known to do for the urine. He recommends its administration (1) in cases of fracture of the skull, (2) in cases of gunshot wounds of the head, (3) as a preliminary to ventricular and lumbar puncture and to spinal and cerebral operations, and (4) in cases of extracranial infections where extension to the meninges is feared, as in otitis media and suppurations of the sinuses. Should it prove as preventive as is hoped it will be a boon to the ear and nose specialist and a most important advance will have been made in the field of prophylactic therapeutics.

A POISONOUS HAIR DYE

On another page[1] in this issue we record three more cases of poisoning from the use of a preparation known as Mrs. Potter's Walnut Juice Hair Stain. This makes eight cases that have been reported to THE JOURNAL within the past six months. It would seem that the time is about ripe for some action to be taken either by state or federal authorities to limit or prevent the further sale of a preparation which has proved dangerous. According to the chemists of the North Dakota Agricultural Experiment Station, this hair dye depends for its action on paraphenylene diamin, a substance which when oxidized by means of a solution of hydrogen dioxid becomes an intense black. The poisonous qualities of this substance have been long known. Eighteen cases of poisoning have been recorded by Cathelineau,[2] who has reported somewhat exhaustively on the subject. Its physiologic effects have been studied by Laborde and Mellière[3] and also by Dubois and Vigum.[4] Hypodermatically administered to dogs, it produces tenesmus, diarrhea and salivation, followed by lowered temperature, opisthotonos and death in from ten to twenty hours. In Mellière's patient the urine was mahogany-colored, though apparently this effect is not always produced. The dermatitis caused by paraphenylene diamin is not always a light attack. L. Brocq[5] described a severe form in which the glands are affected, there is high fever, with a violent eruption and extensive desquamation. A case of poisoning has been reported by Balzer[6] due to wearing hose which had been dyed with the chlorate of paraphenylene diamin. A case of dermatitis from the use of a hair dye having as its base the hydrochlorate of paraphenylene diamin was reported at some length by A. D. Mewborn,[7] who gave a bibliography of cases of poisoning due to the drug and described at some length the preparation, reaction and method of use. The dangerous character of this chemical should in itself be a sufficient reason for controlling its indiscriminate sale to the laity. If Mrs. Potter's Walnut Juice Hair Stain depends for its action on paraphenylene diamin instead of on walnut juice, this fact alone plainly constitutes misbranding within the meaning of the national Food and Drugs Act. To the advertisements of the preparation which state that it "contains no poisonous dyes" the eight cases reported in THE JOURNAL give the "lie direct."

RECONSTRUCTION OF THE BILE DUCTS

Dr. Sullivan's article in this issue giving an account of the ingenious operation which he has contrived and of which he has experimentally demonstrated the feasibility, seems worthy of some special notice. The utilization of the peristaltic tug in the intestines to remove by that route the foreign body, the rubber tube used in restoring the bile passage, is a novelty. Should the further observations on the experimental animals prove that it is not followed by any serious symptoms or complications it may be recommended for practical use in suitable cases in the human subject. The dangers as they appear to us would be in properly securing against leakage in the peritoneal investment, or the too premature expulsion of the rubber tube before the tissues of the new channel have become properly adapted to their

1. Queries and Minor Notes Department, p. 809.

2. Ann. dermat. et de syph., 1898, p. 63.
3. Tribune méd 1901, pp. 172 and 193.
4. Arch. de physiol. norm. et path., 1898.
5. Bull. méd., 1898, p. 237.
6. Ann. dermat. et de syph., 1898, p. 683.
7. THE JOURNAL A. M. A., May 18, 1901, p. 1389.

new function. These risks, however, seem to be negligible ones in the dog and, so far as purely experimental methods can be trusted, the operation seems likely to be a success. Whether the principle of attaching a sponge and using the peristaltic action of the intestines to complete the operation for internal drainage has any wider application or not does not matter—it appears certainly to be an advance in the surgery of the biliary tracts. As Dr. Sullivan says, the other steps in the operation are more or less already accepted details.

Medical News

CALIFORNIA

A Case of Bubonic Plague.—The first case of bubonic plague to be discovered in the state for a year was discovered in Alameda county August 6. The patient, a boy of 13, is supposed to have contracted the disease through handling infected squirrels killed by him on a hunting trip. In consequence of this case, there is renewed activity in the campaign of extermination against the ground squirrel.

Personal.—Dr. Charles C. Stephenson, formerly secretary and president of the Arkansas Medical Society, and professor of ophthalmology and otology in the College of Physicians and Surgeons, has left Little Rock on account of ill-health and located in Los Angeles.——The degree of LL.D. has been conferred on Dr. Francis M. Pottenger, Monrovia, by his alma mater, Otterbein University of Westerville, Ohio.——Dr. George H. Fay, East Auburn, has been appointed local surgeon for the Southern Pacific Railway.——Dr. Lulu H. Peters has been placed in charge of the pathologic work at the Los Angeles County Hospital.——Dr. Antoinette M. Bennette, San Bernardino, has accepted the position of resident physician and superintendent of nurses at the San Bernardino County Hospital.——Dr. Philip V. K. Johnson, city physician of Los Angeles, has resigned.——Dr. Gustave Wilson, first assistant physician of the Southern California Hospital for the Insane, Patton, has resigned.——Dr. David Gochenauer, San Diego, who has served as general manager of the Angelus Hospital, Los Angeles, for a year and a half, has returned to his home in San Diego.——Dr. Charles F. Wade, Los Banos, is reported to be critically ill.——Dr. Wallace I. Terry, chief surgeon of the San Francisco Emergency Hospital Service, announces that he will resign in October.——Dr. J. B. Rogers has been appointed a member of the Alameda Board of Health.

DISTRICT OF COLUMBIA

Personal.—The Cross of the Legion of Honor has been conferred by the French government on Dr. Harvey W. Wiley, chief of the bureau of chemistry.——Dr. G. Lloyd Magruder is the representative of the departments of state and agriculture at the International Medical Congress, Budapest.

ILLINOIS

Personal.—Dr. Lewis A. McFadden, Peoria, who was operated on recently in St. Francis' Hospital for intestinal obstruction, is reported to be improving.——Dr. Edward Hasson, Peoria, was operated on for appendicitis, August 10, at the Proctor Hospital.——Dr. Charles W. Gould, Fairdale, has started for the west and will later go abroad.——Dr. John M. Phifer, Stewardson, has been appointed assistant surgeon of the Atchison, Topeka and Santa Fe Hospital, Topeka, Kan.——Dr. Henry M. Bascom, Ottawa, has been appointed chief surgeon of the Illinois Traction System and of the hospital association of that system.——Dr. Olof Nordvall, Rockford, has returned from Europe.——Dr. Daniel W. Gross, Watseka, has been made a member of the Iroquois county board of U. S. pension examining surgeons, vice Dr. Robert Lumley, deceased.——Dr. and Mrs. R. Jay Atwood, Paxton, sailed for Europe August 11.——Dr. W. E. Taylor, superintendent of the Watertown State Hospital, has been granted six months' leave, becoming effective August 1.

Chicago

Day Nursery Opened.—The Clara Palmer Goetzinger Free Day Nursery of the Esther Falkenstein Settlement House, which will accommodate more than 100 babies, was opened August 16.

Outdoor School.—The first week of the operation of the Outdoor School for Tuberculosis Children showed gratifying results. About thirty of the children of the stock-yards district availed themselves of the opportunity, and they not only derived physical benefit, but obtained ideas regarding hygiene which should benefit them after the closure of the school.

Milk Examination.—During the week ended August 28, bacteriologic examination was made by the health department laboratory of 144 samples of milk and ice cream. The average bacteria count of raw milk was 6,660,290, and of pasteurized milk 378,300; in other words, the raw milk contained 139,600 more bacteria to the drop than the pasteurized milk. The ice cream averaged 10,537,915 bacteria to the cubic centimeter.

Medical Research Institution Founded.—The widow of Nelson Morris has given $250,000 for the erection and complete furnishing of the Nelson Morris Memorial Institution of Medical Research, to be connected with Michael Reese Hospital. The building will be constructed according to the ideas of Dr. James W. Jobling, pathologist of the hospital, and recently pathologist at the Rockefeller Institute. He will also direct the scientific work of the institution.

Personal.—Dr. Anton J. Carlson has been appointed associate professor of physiology, and Dr. H. Gideon Wells, assistant professor of pathology in the University of Chicago.——Dr. and Mrs. Fenton B. Turck and Dr. Louis L. McArthur have gone abroad.——Dr. G. N. Wassom has moved to Oelwein, Iowa, and has been appointed local surgeon for the Chicago Great Western Railroad.——Dr. Truman W. Brophy fell in his room in Berlin, August 19, and sustained painful injuries.

MARYLAND

Personal.—Drs. William J. Todd, Mount Washington, L. Gibbons Smart, Lutherville, and J. H. Jarrett, Towson, have been appointed censors of the Baltimore County Medical Association.——Dr. Henry L. Naylor, Pikesville, has been appointed a member of the State Commission on Pure Food, and on the subcommittee to draft a pure food law.

Prevention of Ophthalmia of the Newborn.—Mrs. Joseph Colt Bloodgood, Baltimore, secretary of the new Maryland Society for the Prevention of Blindness, has issued a circular which has been sent to all physicians in the state, asking them to pledge themselves to use some approved method of prophylaxis of ophthalmia neonatorum in their obstetric practice. The circular states that one-fourth of the blindness of children and one-eighth of all blindness is due to ophthalmia neonatorum.

Baltimore

Death from Pellagra.—A woman, aged 52, from Washington, D. C., died at Mercy Hospital, Baltimore, August 21, from pellagra. This is the third case of the disease observed in Maryland.

Cholera Ship on the Way.—Considerable anxiety exists in health circles over the announcement that the steamer *Andyk* from Rotterdam, a port infected with cholera, sailed for Baltimore August 25, and is due September 8. So far as known no case of cholera existed on the ship at the time of leaving port.

New Wards.—A new ward to cost about $140,000 is to be constructed at Bayview Asylum. It will be four stories in height, constructed of brick and re-enforced concrete, will be fireproof, and will contain a gymnasium and dormitory.——A new building is to be erected by the Church Home and Infirmary for a nurses' home and ward for children, at a cost of about $25,000. The building will accommodate from forty to fifty nurses.

Personal.—Dr. Percy M. Dawson, associate professor of physiology in Johns Hopkins Medical School, has resigned to take up the study of theology.——Dr. E. A. Erlanger has been made associate professor of physiology and Dr. C. D. English has been promoted to fill the vacancy caused by Dr. Erlanger's promotion.——Dr. Thomas C. Worthington has sailed for Europe.——Dr. John Doyle, interne at Mercy Hospital, was operated on for appendicitis at that institution, August 18.

MASSACHUSETTS

Personal.—Dr. and Mrs. Richard C. Cabot, Boston, have sailed for Scotland.——Dr. Samuel A. Green, formerly mayor of Boston, was overcome by the heat, August 9, and fell and sprained his ankle.

Tuberculosis Camp Opened.—Prendergast Tuberculosis Camp at Mattapan opened August 6, for the reception of patients. The camp comprises twenty acres, on which has been erected a large one-story wooden building, equipped with electric lights.

shower bath, dormitory and refectory, accommodating 12 men and 20 children. The children stay at the camp during the day, and the sleeping accommodations are for former sanatorium patients who have been discharged as cured, but wish to continue the open-air treatment. Once a week the children are sent to the Boston City Dispensary for examination.

MICHIGAN

Peninsula Physicians Meet.—At the annual session of the Upper Peninsula Medical Society, held in Calumet August 4, Sault Ste. Marie was selected as the next place of meeting, and the following officers were elected: President, Dr. Edward T. Abrams, Dollar Bay; and vice-presidents, Drs. Robert B. Binnie, Sault Ste. Marie, and John MacRae, Calumet.

State Society Meeting.—The Michigan State Medical Society will hold its annual meeting at Kalamazoo, September 15 and 16. The Kalamazoo Academy of Medicine will act as host of the organization. The general meetings will be held in the Congregational church, and the house of delegates will hold its session in the rooms of the Academy of Medicine. Dr. Archibald Church, Chicago, will deliver an address on "Mind Cures in General and Emmanuelism in Particular."

MISSOURI

Demands Clean Cars.—Governor Hadley has sent a letter to Dr. Albert H. Hamel, St. Louis, president of the State Board of Health, requesting that the board confer with the general managers of the railways in the state for the purpose of obtaining compliance with such sanitary regulations as he deems it advisable to adopt.

Personal.—Dr. Wilson J. Ferguson, Sedalia, has been appointed examining physician for Pettis county for the Missouri State Sanatorium.——Dr. Frank B. Hiller, Kahoka, has been elected secretary of the State Board of Health, vice Dr. James A. B. Adcock, Warrensburg, resigned.——Dr. John A. Riley, Fulton, has been appointed first assistant physician of the State Hospital, Patton, Cal.——Dr. William J. Calvert, Columbia, has been appointed professor of medicine in the Baylor University College of Medicine, Dallas, Texas.

NORTH CAROLINA

Personal.—Dr. John T. Battle, Greensboro, who was operated on for appendicitis at St. Leo's Hospital, is making a good recovery.——Dr. Chalmers M. Van Poole, Craven, has been elected president of the Rowan Farmers' Mutual Insurance Company.——Dr. Andrew W. Goodwin, Raleigh, who was recently suspended from the Wake County Medical Society, has resigned as professor of diseases of the skin and of the genito-urinary system in the University of North Carolina Medical School, and also as professor and demonstrator of anatomy in the Leonard Medical College in the same city.——Dr. Henry B. Marriott, Battleboro, has been appointed director of the State Hospital for the Insane, Raleigh, vice Dr. William H. Whitehead, Rocky Mount, deceased.——Dr. William W. Stancell, Margarettville, has been elected assistant physician at the State Hospital for the Insane, Raleigh, vice Dr. Charles L. Jenkins, Raleigh, transferred as physician in charge of the epileptic group or colony building.——Dr. William J. McAnally, High Point, is seriously ill from the bite of a poisonous spider.

NEW YORK

Personal.—In the recent fire at Monticello the home of Dr. John F. Curlette was entirely destroyed.——Dr. Nathan E. Beardsley, Dunkirk, was seriously injured in an automobile accident recently.——Dr. A. C. Kniskern has been elected president of the board of education of Mechanicsville, vice Dr. Walter C. Crombie.

Objections to Water Pollution.—Dr. Eugene H. Porter, State Commissioner of Health, announces that there are three reasons why there should be no pollution of the state's natural water courses—the protection of public health, the prevention of public nuisances and the safeguarding of riparian rights. In general, he is of the opinion that the greatest damage to riparian rights and the most widely felt interference with the use of streams for manufacturing and agricultural purposes results from the discharge of untreated industrial waste rather than from the discharge of domestic sewage.

Tuberculosis Campaign Bringing Results.—The war against tuberculosis in New York State is beginning to show results. ——Dr. E. H. Porter, State Commissioner of Health, has authorized the establishment of a camp at East Bloomfield, Ontario county.——Rochester is to have a city hospital.——Yonkers is doing creditable work for its tuberculous.——Ontario county has made an appropriation for a tuberculosis hospital.——Ex-Governor Odell has endowed a hospital for Orange county at Newburgh and Elmira has received a similar donation from Mr. and Mrs. Rapelyea.——Poughkeepsie has a model day and night tuberculosis camp.——Buffalo and Rochester have also made special provisions for the care of their tuberculosis patients.——The Woman's Antituberculosis League of Albany has planned for a "Button Day" on Labor Day, September 6.

Sanitary Conditions of Summer Resorts.—The sanitary inspection of summer resorts, which was first taken up by the State Department of Health in 1906, has been continued. In the Long Island district, five out of twenty-seven resorts were found to be in insanitary condition. At the reinspection last year, conditions had been corrected in two instances, and at the second inspection in June, 1909, the insanitary condition had been removed in one instance and partially removed in a second, while at the third, sanitary work was being carried on. In the Catskill resorts, nineteen out of sixty-four were found to be in insanitary condition, and at the 1908 reinspection, twelve were found to have corrected the nuisance, while at the reinspection in June, 1909, two of the remaining seven have made improvements, and the proprietors of the remaining five promised to make the desired changes in sanitary arrangements. In the Raquette River and Saranac and St. Regis watersheds, forty-two resorts were inspected, in twenty-four of which insanitary conditions were found to exist.

New York City

Inspectors Dropped.—Notices were sent August 20, to thirty-three medical inspectors who were appointed February 25, that their services would be dispensed with after August 25.

Personal.—Dr. Alpheus Freeman sailed for Europe August 28.——At the semi-milennial anniversary of the University of Leipzig, the degree of doctor of medicine was conferred on Prof. E. B. Wilson.——Dr. J. Richard Kevin, Brooklyn, has succeeded Major Henry L. Cochran as surgeon of the Twenty-third Infantry, N. G. N. Y.

Hospital Improvements.—Plans have been filed for a nine-story annex to the Babies' Hospital at Lexington avenue and Fifty-ninth street, which will cost $50,000.——Plans have also been filed for a new private laboratory for the professors of the College of Physicians and Surgeons of Columbia University to be built on the roof of a corridor connecting two wings of the college. This improvement will cost $3,000.

Epidemic of Paralysis.—In the Brownsville section of Brooklyn an epidemic of infantile paralysis has broken out which has afflicted more than 200 children between the ages of 1 and 5 years. Physicians and parents charge the Health Department with laxity as it is claimed that cases were reported two weeks ago and no measures were taken to investigate the nature and causes of the epidemic.

Academy News.—The Wesley M. Carpenter Lecture of the New York Academy of Medicine for 1909 will be delivered October 21, at 8:30 p. m., by Dr. Howard T. Ricketts, professor of pathology in the University of Chicago, on "Some Aspects of Rocky Mountain Spotted (Tick) Fever, as Shown by Recent Investigation." On November 18, the anniversary address will be delivered by Dr. Louis Livingston Seaman on "Personal Observations of the Sleeping Sickness in Central Africa."

Holmes Centenary.—The county medical society, on October 9, will hold a meeting commemorative of the eminence as a physician of Dr. Oliver Wendell Holmes. The meeting will be held at the New York Academy of Medicine, and addresses will be made by Dr. Maurice H. Richardson of Harvard Medical School on "Personal Reminiscences of Dr. Oliver Wendell Holmes," by Dr. Edward O. Otis, Boston, on "Dr. Holmes' Achievements as a Physician," and by Dr. William H. Thomson, New York City, on "The Many-Sided Holmes."

City Children and Tuberculosis.—An investigation made during the summer at the Sea Breeze Hospital, maintained by the Association for Improving the Condition of the Poor, indicates that from 25 to 30 per cent. of the small school children in the poorer tenement districts of the city are infected with tuberculosis. Up to the middle of August 728 children had been tested for tuberculosis at Sea Breeze, 381 boys and 347 girls. Of this number 205 and 281 respectively showed a positive reaction to the tuberculin test. The percentage of reaction among the girls was much higher than among the boys. The reaction in many instances may have meant only a tuberculous gland which would probably lead to nothing serious.

PENNSYLVANIA

Farmers and Tuberculosis.—At the farmers' meeting at Landenberg, August 27, 5,000 people were in attendance. The important phase of the gathering was the launching of the antituberculosis campaign for pure milk. The meeting was addressed by dairymen, physicians and educators from various parts of the country.

Fight on Witchcraft.—"Hex" and "Pow-Wow" physicians, who have had a strong hold on the superstitious portion of the population of Reading and surrounding country for many years, and who are said to be responsible for the deaths of six infants, are to be prevented from doing business by the health authorities. The coroner of Berks county is using every effort to bring the guilty persons to justice.

Personal.—Mr. Wallace Hatch, executive secretary of the Pennsylvania Society for the Prevention of Tuberculosis, has resigned.——Dr. William J. Davidson, physician at the plant of the Pressed Steel Car Company, McKee's Rocks, was wounded severely in the neck and arm during the riots, August 22.——Dr. John Hoskins, Chester, was thrown from his carriage, August 22, and seriously injured.——Dr. Albert Ellershaw, Bridgeport, has sailed for Europe.

Medical Missionary Society.—Application has been made for the incorporation of the Pennsylvania Medical Missionary Society with the objects of assisting students of evangelical faith, preparing for medical missionary work; of diffusing knowledge and arousing interest in medical missions; of obtaining contributions of money for their support; and of establishing and maintaining homes or residences for the use of missionaries and students preparing for missionary work.

Philadelphia

Personal.—Dr. Walter W. Roach has been appointed assistant medical inspector in the bureau of health, vice Dr. William Drayton, Jr., resigned.——Dr. John L. Borsch, Jr., has been decorated by the Italian government for professional services rendered the king of Italy.——Dr. Charles F. W. Plass has returned from Europe.——Dr. Mortimer Herzberg, assistant bacteriologist to the bureau of health, has resigned to accept the professorship of pathology and bacteriology in the University of South Dakota.——Dr. Charles S. Barnes has sailed for Europe.

Bags for Milk.—The director of health and charities, on August 20, began the distribution of bags, in which it is proposed milk dealers shall place the supply of bottled milk served to customers. The bags, besides protecting the food supply, have printed on them advice regarding pure milk, which is as follows:

Buy milk from a RELIABLE DEALER, where you get it clean and fresh.

Keep the milk ALWAYS on ice. Don't leave it standing for several hours on the doorstep.

Keep bottles and every utensil coming in contact with milk ABSOLUTELY CLEAN.

Feed at regular intervals. Keep baby clean. Bathe every day. Keep rooms clean.

Keep child in shade and in open air as much as possible.

If you obtain milk in bottle (the best way) allow it to stand on ice for a few hours before making the day's feeding. Shake the bottle before using. If obtained in can or pitcher, COVER it to prevent dirt from entering.

If the milk mixture does not agree with the baby, try for one or two days, removing one-half the quantity of boiled water and in its place add the same quantity of BARLEY WATER (made by boiling one tablespoonful of pearl barley in one quart of water for one hour, and then straining).

If the child vomits, has loose, green passages, or is otherwise sick, procure medical aid, without delay.

At all ages between feeding give freely to the baby water previously boiled.

Do not give any other liquids or any solid food, except on advice from a physician.

For detailed information apply or write to the Bureau oof Health, Room 712, City Hall.

VIRGINIA

Typhoid Study.—The Virginia Department of Health has announced that Staunton will be the center of the new movement for the study of the typhoid fever situation in the valley. A traveling laboratory will be established in charge of Dr. A. P. Waddill, under the supervision of Assistant Health Commissioner A. W. Freeman and Dr. H. T. Marshall.

Personal.—Dr. John R. Bagby, health officer of Newport News, has resigned.——Dr. J. Frazer Jones, Richmond, was operated on for appendicitis, August 9.——Dr. W. L. Statewood has succeeded Dr. T. F. Jarrett, resigned, as assistant physician at the Central State Hospital, Petersburg. Dr. Thomas W. M. Long has been appointed second assistant physician, Dr. James C. Bardin, pathologist and bacteriologist, and Drs. Meade S. Brent, Northumberland county, and Robert A. Davis, Newport News, have been appointed additional assistants.——Dr. Lawrence T. Royster has been elected chairman of the school board of Norfolk.

GENERAL NEWS AND COMMENT

Obstetricians to Meet.—The annual meeting of the American Association of Obstetricians and Gynecologists will be held in the Hotel Anthony, Fort Wayne, Ind., September 21-23, under the presidency of Dr. William H. Humiston, Cleveland, Ohio.

Guarding Against Bubonic Plague.—To guard against the introduction of bubonic plague in United States ports, the Public Health and Marine-Hospital Service has directed its surgeons at leading shipping ports to enforce the rules safeguarding vessels bound for American ports against infection by rats. In eastern ports, vessels bound for America are not allowed to go alongside wharves, and are required to have rat guards on all lines before bills of health are furnished them.

Personal.—Surgeon Henry R. Carter, P. H. and M.-H. Service, director of hospitals of the Canal Zone, and family, sailed from Cristobal for New York, August 11. Dr. Carter has had more than five years' service in the isthmus and will not return at the expiration of his leave of absence.——P. A. Surgeon Donald H. Currie, P. H. and M.-H. Service, has gone to Bergen, Norway, as a delegate to the International Leprosy Congress.——Surgeon-General George H. Torney and Major Paul F. Straub, Medical Corps, U. S. Army, are representing the Army at the International Medical Congress, Budapest. During General Torney's absence, Col. Valery Havard will act as Surgeon-General.——Dr. Duke W. Goodman, U. S. P. H. and M.-H. Service, Fort Limon, is reported to be seriously ill with cerebral hemorrhage.

Army Instructs National Guard.—The Medical Corps of the Army has made experiments this summer in establishing camps of instruction for the medical department and hospital corps of the national guard of the various states. These three camps were established at Antietam, Md., Sparta, Wis., and the Presidio of San Francisco, under the charge of officers of high rank in the medical corps of the army, and were kept open for two periods of fourteen days each. The officers attending the camp were furnished pay, transportation, and subsistence, and the work undertaken included hospital corps drill, first-aid work, military hygiene, medical service in campaign, administration, and practical field work. Great interest was taken in the course of instruction by the students and it is to be hoped that the government will see fit to continue this excellent and valuable work.

Warning Concerning Alleged Agent.—The profession is warned against a man who pretends to represent the William Meyer Company, manufacturers of electrotherapeutic apparatus, Chicago, but who, the firm says, is swindling doctors by obtaining money without giving any return. The man is reported as a Swede or German-American, with a broken accent, about five feet, six inches tall, heavily built, clean shaven, with a very full face, a pasty white complexion, a rather protruding lower lip and dark moist hair; he is well dressed, has a suave manner, displays several valuable diamond rings and wears a large blue stone in his shirt front. He has given the name of Amos Cato, but he has given many other names. The William Meyer Company state that he does not represent them and that warrants are out for his arrest at Tacoma and Seattle. His method of swindling is to solicit orders and to obtain money as payment or partial payment for the goods, without making a return for the money.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 19, 1909.

Reform in Pharmaceutical Studies

The superior council of public instruction has during its last session been considering the reform of the course of studies leading to the pharmacists' diploma. According to the new plan, which will go into force Nov. 1, 1910, the pharmaceutical course will last five years; one year of apprenticeship or *stage* in a laboratory (to be required without exception), and four years of academic work. The apprentice or *stagiaire* must be 16 years old and have graduated from the secondary schools. On completion of the *stage* the candidates will pass an examination; during the four academic years, candidates will take sixteen quarterly terms of school work and will pass six examinations.

The Selection of Physicians by Pauper Patients

The law of July 15, 1893, in regard to medical charity, permits each community to choose the method of dispensing this charity; thus there are two systems in use. In fifty-nine departments the pauper selects his own physician, while in others, especially in Paris and in the Department of the Seine, the administration selects a physician. In Paris these physicians, numbering 240, are chosen for three years by the prefect of the Seine and their appointments are renewed from one three-year term to another. They receive a salary in proportion to the number of paupers in the districts which they have to visit, without regard to the number of visits. This system is to-day in disfavor. The municipal council inclines toward permitting the patient to select his physician and the Chamber of Deputies is considering an amendment of the law to this effect. The law on industrial accidents recognizes the principle that to deny the patient the right to select his physician is to interfere with personal liberty, and various medical associations are demanding that the same liberty should be accorded to paupers as to the victims of industrial accidents. Under the new system physicians would be paid according to the legally established scale for industrial accidents, which is lower than the ordinary scale of fees, and it is said that the expenses would be no higher than under the present system.

A New University

As soon as it meets the Senate will consider a bill passed by the Chamber of Deputies to reorganize the Schools of Higher Education of Algiers into a university, and to change the School of the Practice of Medicine and Pharmacy of Algiers to a mixed college of medicine and pharmacy.

An Educational Campaign Against Quackery

A medical periodical, the *Médecin de campagne* has inaugurated a contest open to French-speaking physicians, the object being the composition of an antiquackery circular, intended for the public at large, to be written in a clear and striking style on the dangers of quackery, the methods and the sources of the fortunes of quacks, their exploitation of the credulous, and the difference between men of real scientific achievement and commercial promoters. Thousands of copies of this circular will be given out by the *Médecin de campagne* to medical societies and to physicians for circulation among their patients.

French Association of Urology

The thirteenth session of the French Association of Urology will be held Oct. 7-9, 1909, at Paris at the College of Medicine under the presidency of Professor Guyon. The subject for discussion is "Calculi of the Ureter;" the essayist is Dr. Joanbrau, professor *agrégé* of the college of medicine of Montpellier.

The Tillaux Monument

The monument erected to the memory of Professor Tillaux will be dedicated Oct. 7, 1909, at the amphitheater of anatomy of the hospitals.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug. 11, 1909.

Personals

Death is claiming our distinguished gynecologists at a fearful rate. While Pfannenstiel and Runge have left us within the last few weeks, Prof. v. Rosthorn at Vienna has just succumbed to an apoplectic stroke while hunting. [A notice of this death appeared in THE JOURNAL, August 21, page 647.] The deceased was closely related to us in Germany, as he was for some years director of the gynecologic clinic of Heidelberg. From thence he was called two years ago to Vienna.

The filling of the position of director of the medical clinic at Greifswald has taken a singular course. In a quite unusual way Professor Stern, at Breslau, who received a call last April (after repeated refusal of other professors), has twice accepted and again declined the position. I am unaware of the reasons for this conduct. The first assistant of Professor Kraus has now been appointed in his place, and it is to be hoped that the Greifswald clinic has at last a director.

The director of the medical policlinic in Strassburg, Professor Kohts, has resigned his position, and the assistant of Professor Müller in Munich, Dr. E. Meyer, has been appointed chief of the policlinic. A rearrangement of the university faculty has also occurred at Freiburg. In place of Professor de la Camp, who, as I reported sometime ago, is the successor of Bäumler as director of the medical clinic, Privatdocent Dr. Morawitz of Heidelberg has been appointed. In addition, a new extraordinary professorship for children's diseases has been established, and Professor Salge of Göttingen, a pupil of Heubner, has been selected for the chair.

Duke Karl Theodor of Bavaria, the well-known ophthalmologist, celebrated his seventieth birthday, August 9. This princely colleague is the author of a number of very creditable scientific articles in the field of ophthalmology. For many years he has had an extensive practice, and his skill, particularly in cataract operations, is celebrated. However, as he treats the patients gratis he infringes considerably on the practice of the neighboring ophthalmologists, and these have often complained regarding this matter. Nevertheless, the duke enjoys a remarkable degree of respect among physicians in Bavaria with regard to professional relations since, so far as consistent with his position, he has supported the efforts of physicians for the improvement of their economic condition and social standing. Munich and the well-known health resort, Tegernsee, where the duke resides most of the time, have given him the freedom of the city on the occasion of his birthday.

The Campaign Against Quackery

The medical profession in western Bavaria, the Rheinpfalz, have adopted a new method of combating the patronage of quacks by the public; they have passed a resolution to refuse medical aid to such families as first call in a physician in case of injury and then, with reckless disregard of the same, allow quacks to assume the after-treatment. A single visit in case of necessity is to be excepted. It can not be denied that such a resolution will restrain many from carelessly exchanging the physician for a quack, but this measure will secure as little real success as others, and, moreover, may be the occasion of hardships to many.

Spread of Typhoid

This year as usual a relatively larger number of typhoid cases occurred in the German empire in the months of July and August. To what this explosive increase of typhoid morbidity at this time of the year is to be referred has not been surely determined. It is partly due to the greater movement of the population which takes vacation journeys in these months, and partly to the harvest work which is distributed over large areas of land. In almost all these cases the occurrence of the typhoid epidemic is due to water infection. Such has been shown to be the cause of a marked epidemic which prevailed in Altwasser, a large village of upper Silesia, which is inhabited chiefly by miners and factory workers. In this relatively small district in the course of a few weeks 622 cases of typhoid occurred, fortunately with the light mortality of 32 (5.1 per cent.). Moreover, the military maneuvers which take place in these months give occasion for the origin and increase of typhoid. Thus in Hanover 21 cases of typhoid fever were found in one army corps, and those attacked had taken part in an exercise of the ambulance corps, during which the infection must have occurred, according to the investigations made. In this epidemic there were no deaths. The mortality of typhoid is less than formerly. Great stress is laid on rendering typhoid bacillus carriers harmless, as their importance for the spread of typhoid is becoming more and more recognized. The government of Saxony published an edict in June according to which district physicians must direct their attention to individuals who permanently excrete typhoid bacilli, report them to the authorities and inform the persons concerned regarding the danger for their environment which they constitute. Bacillus carriers who deal with food supplies must abandon such an occupation.

The Isolation of Advanced Consumptives

While extensive provision is made for consumptives in the initial stages the care of those in advanced stages leaves much to be desired. They are not received into the sanatoria, as a cure is out of the question, and the funds must not be sacrificed for useless therapeutic efforts. On the other hand, it is generally recognized that there is a constant danger of the spread of tuberculosis especially by these patients. B. Fränkel, and especially Robert Koch, have for many years emphasized the fact that the important factor in fighting tuberculosis consists less in curing consumptives than in the making incurable consumptives harmless. All measures which have been used heretofore to secure the isolation of such patients have had little success. The construction of special invalid homes or separate departments for such patients in the hospitals with rest-rooms and gardens has been tried. But such institutions have naturally the character of houses to die in, and are therefore feared and avoided by the patients. For this

reason the isolation of these patients in institutions in which both curable and incurable patients may find a place in separate departments is favored. Moreover, the attempt to place consumptives in small cottage homes in the neighborhood of their previous home must be regarded as hitherto a failure. The number who can be isolated in this way is relatively so small that it has no influence on the suppression of tuberculosis. Under the circumstances it is necessary at present to leave these patients in their homes and to secure their isolation as far as possible by means of instructions and nursing. An improvement could be secured if the introduction of compulsory notification of tuberculosis should provide a legal ground for the removal of patients from their homes and their isolation in hospitals. To be sure, the prospects for such a measure, which is already in existence in other countries, is very small in consideration of the present composition of our legislative bodies.

Division of the Ministry of Education

A reorganization of the Prussian ministry of education (*Kultusministerium*), the necessity for which I have formerly noted, will, as I can authoritatively state, be accomplished in a short time. The department, which consists of three divisions, will give up the medical bureau, which will be attached to the department of the interior, so that the *Kultusministerium* will hereafter include only matters of education and the affairs of the church. Whether this transfer of medical affairs to the department of the interior will be of advantage for the public health and for physicians I very much doubt. On the whole, the business will be conducted in the same way as heretofore. A positive advance can be secured only by another organization, that is to say, by the unification of all sanitary matters which are now distributed through a series of departments (thus, railroad hygiene is cared for by the department of railroads, hygiene of trades and buildings by the department of public works), and by granting a greater independence to the medical division. The establishment of a special medical department would be of the greatest importance, but there is no prospect of carrying out such a project, aside from other difficulties, in consequence of the present unsatisfactory financial condition of Prussia in spite of the financial reform.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug. 15, 1909.

Death of Eminent Viennese Professors

Within a short time, two gynecologists of our university senate died unexpectedly, and their loss is deeply felt by the profession. The younger, and the better known of the two, Prof. Alfons von Rosthorn, was only 52 years old. He was in his younger days assistant to Breisky and Chrobak, both well-known obstetric and gynecologic surgeons, whose professorship in the Vienna Allgemeines Krankenhaus meant an epoch of brilliant scientific achievements. Rosthorn soon was offered a professorship in Graz, later on in Heidelberg, and when two years ago Chrobak retired from his post in Vienna, the brilliancy of Rosthorn's researches and his fame as a surgeon prompted the Vienna medical faculty to elect him as Chrobak's successor. Under his supervision, in cooperation with Schauta, the new clinics were finished and many valuable suggestions were offered by the newly appointed professor. When in 1908 he finally took over the charge of the new clinic, he laid special stress on the teaching of the students, imbuing them with the motto: "Primum non nocere." He soon drew many students to his lectures, for he had the gift of filling their minds with the enthusiasm of the investigator. The short space of time in which he had the opportunity to make himself prominent in Vienna only showed how much we have lost by his death. Rosthorn's chief attention was directed to the diseases of the adnexa of the female genitourinary system, and his main merit during his short activity here lay in the fact that he insisted on a prolonged term of service for each student as an interne at the hospital. The other man whose death came as a shock to his numerous friends and pupils was G. C. Lott, professor of obstetrics and gynecology, and director of the gynecologic department of the Poliklinik. Lott was a conservative but energetic surgeon, whose anatomic researches form the foundation on which the teaching of the pathology of the lower uterine segment is based. He reached the age of 66 years.

Pellagra in Austria: New Report

Since 1905 the action of the government in suppressing pellagra has been going on and including all affected areas. Altogether a population of 2,250,000 has been investigated with the result that about 78,163 persons (3 per cent.) were found to be suffering from one form or another of the disease. Certain districts were more affected than others, and as a rule, the poorer classes succumbed more easily than those who could procure the food regarded as necessary. The measures of the government have been of a prophylactic nature. Apart from instituting bakeries with an ample supply of good flour, where the people could obtain good bread at a minimum price, salt and quinin were distributed freely, it having been observed that the exhibition of these substances had a marked effect on the course of the disease. The action of the government (described in THE JOURNAL, Aug. 1, 1908, li, 420) has since last year cost about $45,000, and the benefit derived by it has prompted several corporations in the affected eastern provinces of the empire to assist the board of health in its efforts by generous gifts. Thus the funds at disposal will enable the extension of the action to all afflicted districts. Out of the cases treated within the last two years, there were recurrences in 126.

Regulations Concerning General Anesthesia

Some regrettable accidents, among them a death from the effects of narcosis before operation, have prompted the government to revise the regulations dealing with general anesthesia for hospitals. The following points have been especially worked out: In a hospital anesthesia must not be produced except by a special anesthetist. In no case may a surgeon anesthetize and operate at the same time, except in an emergency, when necessary to save life. If in a hospital a nurse or student is entrusted with the administration of the narcotic substance, such individual must be controlled and assisted by a qualified surgeon. The surgeon should select the kind of narcosis as well as satisfy himself of the purity of the chemicals used, as the entire responsibility rests with him. Whenever possible, the open method should be preferred, and the A. C. E. mixture is recommended, unless pure ether is required. Special stress is laid on the necessity of examination for the presence of the much-feared "status lymphaticus." Every month reports of the number of anesthesias, the duration and the result, along with the kind and quantities of narcotic substance used, have to be sent to the board of health. Needless to say, in each case of fatal narcosis a very strict postmortem examination has to be made to find out the reason for the death.

Correspondence

The Turner Memorial Fund

To the Editor:—The late Dr. J. Edward Turner, the founder and projector of the first inebriate asylum in the world, built at Binghamton, N. Y., died in indigent circumstances and was buried at Wilton, Conn. No stone or monument marks his burial-place.

Dr. Turner was the first man to point out the practical possibilities from the medical study and treatment of inebriates in an institution, and to indicate that the great alcoholic problem must be solved by a scientific study of the inebriate and the nature and influence of alcohol. His views were severely ridiculed; and he was persecuted as a crank, but this only increased his ardor, energy and self-sacrifice. He was a century ahead of his day and generation, and his writings and books indicate a knowledge of the subject which even now is just beginning to dawn on the minds of the most advanced students.

Now that the alcoholic problem is coming into prominence, and is so intimately associated with the great hygienic problems of the day, it should be the privilege as well as the duty of American physicians to recognize Dr. Turner's marvelous work and studies in some manner.

A committee (of which I am chairman) has been appointed by the Society for the Study of Alcohol and Other Narcotics to solicit subscriptions for the purpose of erecting over Dr. Turner's grave a monument costing about $600 or $700. Dr. L. D. Mason, 171 Joralemon street, Brooklyn, the treasurer of the Turner Memorial Fund, will receive and acknowledge contributions of any amount for this purpose. Subscribers to the fund will receive a copy of Dr. Turner's "History of the First Inebriate Asylum in the World," a volume of 500 pages, published a short time before his death, and containing an account of the struggles and beginnings of the first institution at Binghamton. It is proposed to hold, when the contributions

are sufficient, a formal dedicatory service at Wilton, Conn., at which addresses will be delivered in memory of Dr. Turner and his work.

Correspondence is solicited either with Dr. Mason or with the undersigned. T. D. CROTHERS, M.D., Hartford, Conn.

The Pneumococcus-Carrier a Possible Danger

To the Editor:—"An Epidemic of Empyema," reported in THE JOURNAL, Aug. 14, 1909, p. 529, leads me to ask if one case developed in advance of the others, and if the author, or some other person had, within a few hours following a visit to the home of the first pneumonia patient, come in contact with the persons who afterward developed pleuritis?

It is interesting to know how extremely susceptible some persons are to pulmonary infection, especially the old and the young and those having a tendency to such troubles.

I conducted a series of experiments on the possibility of the conveyance of infection in the laboratory of the late Professor Miller of Berlin in which the saliva of a visiting physician was found to contain the elements of the diseases of the various cases, seen by him, more than an hour after leaving them. Among these were pneumonia cases. I found that after the mouth and nares were sterilized the saliva would not produce pneumonia, septicemia, etc., as it did before sterilization.

I am inclined to believe that pneumonia as well as measles, scarlet fever, diphtheria, etc., might be carried from house to house, causing epidemics, unless the physician and visitors are sterilized after leaving the sick chamber.

It seems to me that this is a subject worthy of consideration by the U. S. Public Health and Marine-Hospital Service.

G. LENOX CURTIS, New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POISONING FROM MRS. POTTER'S WALNUT JUICE HAIR STAIN

To the Editor:—In THE JOURNAL of August 14, I noticed a report of a dermatitis following the use of Mrs. Potter's Walnut Juice Hair Stain. I wish to report another due to the same preparation.

History.—On July 6, 1909, I was called in to see a middle-aged woman who, for a week, had had a dermatitis of scalp, back of neck and ears, shoulders and scapular region. She complained of intense itching and soreness.

Examination.—The skin over the scalp, back of neck and ears and shoulders was very red and swollen; scattered here and there were papules, vesicles, pustules and scabs. The scalp especially was very pustular. Itching and pain were severe especially in scalp. The patient said the eruption had broken out immediately following a second application of Mrs. Potter's Walnut Juice Hair Stain, first application having been just two days preceding second application.

Treatment.—I advised washing the hair and scalp with green soap and water daily and using a soothing antiseptic ointment. The dermatitis cleared up in four days.

WILLIAM W. WOOD, M.D., Jamestown, N. D.

To the Editor:—My excuse for reporting the following case of dermatitis venenata caused by the use of Mrs. Potter's Walnut Juice Hair Stain is based on two grounds: Marked edema and induration of tissues involved and the intractable course of the disease.

History.—The patient, a woman aged 59, called me May 20, 1909, to prescribe for an eruption on head and neck of several days' duration. The use of a hair dye was at once surmised owing to the peculiar greenish-brown color of the hair with gray roots underneath. The patient admitted having used Mrs. Potter's Walnut Juice Hair Stain on two occasions, two days apart, the eruption appearing within 48 hours after the last application.

Examination.—The face and neck were covered with a papular eruption, the inflamed borders of which had coalesced presenting a uniform deep, dusky red color extending from the hair line to the clavicles. The lower eyelids were very edematous and the left ear was indurated and swollen to twice the normal size. The right ear was of a dusky red color, but without papules or swelling. Heart and kidneys were apparently normal, temperature and pulse remaining normal throughout the course of the disease.

Treatment.—The itching and burning were relieved for a short time only by cooling lotions, the prescriptions having to be changed at frequent intervals, to give continuous relief. The usual antipruritic ointment gave no relief at all, the patient declaring that "salves" made the itching worse. While the symptoms were reasonably relieved by treatment, the dermatitis with the edema of eyes and thickening of ear persisted for six weeks. In the third week a scattered papular eruption appeared on the chest and shoulders. In this location the itching was not so intense. At the end of six weeks the eruption had faded and the edema had almost disappeared, the sensation of burning remaining—without itching—for some time after the skin had cleared up.

E. A. HANNUM, M.D., Cleveland, O.

To the Editor:—I have just seen a patient poisoned as described by Dr. Schalek (THE JOURNAL, Feb. 13, 1909) by the Potter hair dye. This woman had used several other so-called walnut juice stains, but was not poisoned until she applied the Potter product.

EDWARD NORTON EWEN, M.D., Oakland, Cal.

COMMENT.—Other cases of poisoning due to this preparation have been reported in THE JOURNAL as follows: One case Feb. 13, 1909; one case March 6, 1909; two cases April 3, 1909, and one case Aug. 14, 1909. The subject is referred to editorially in this issue.

PROPOSED SECTION ON PSYCHIC FORCES

To the Editor:—The suggestion by Gustavus Werber in THE JOURNAL, August 28, p. 731, to establish a section on psychic forces in the American Medical Association merits the encouragement of the members of the profession.

Around the accredited and orderly facts of our science of medicine there floats a sort of dust cloud of exceptional phenomena at times and places that can not readily be ignored but which always is more easy to ridicule than to explain. No part of this mystical phenomena has been treated with a more contemptuous scientific disregard than the mass of phenomena generally termed psychic. Lord Kelvin, then Sir William Thomson, in the president's address of the British Association for the advancement of science in 1871, laid down a dictum that should be the motto for all true scientists the world over. He then said: "Science is under bonds, by the eternal principles of honor, to look fearlessly in the face of every problem that is presented to her." The physician is now interested in psychotherapeutics and this subject no doubt can not gain much progress until a lot of other phenomena along that line shall also receive the attention that they rightly merit.

In Europe many of the leading scientists and physicians are interested in these phenomena. I heartily agree that we in America can not afford to lag behind in this movement and believe that the medical man is the right man to study it, for he of all others is best prepared and has the best opportunity.

DANIEL S. HAGER, M.D., Chicago.

The Public Service

Medical Department of the Army

Changes for the week ended Aug. 28, 1909:

Rhoads, Thomas L., major, August 20, left Walter Reed Army General Hospital on 10 days' leave.

Hughes, Leonard S., 1st lieut., M. R. C., August 15, left Department Rifle Range, Cal., en route to Fort Lawton, Washington, for duty.

Wells, F. M., 1st lieut., M. R. C., August 18, left Fort Robinson, Nebr., en route to Fort Leavenworth, Kan., for duty with troops to Des Moines, Iowa.

Tukey, Willim H., 1st lieut., M. R. C., granted 21 days' leave of absence about Aug. 20, 1909.

Harris, Jesse R., capt., ordered to proceed from Fort George Wright, Wash., to Boise Barracks, Idaho, for temporary duty.

Baily, Howard H., capt., granted 15 days' leave of absence when his services can be spared.

McLellan, George H., 1st lieut., M. R. C., ordered to proceed from Fort Crook, Nebr., to Fort Des Moines, Iowa, for duty with troops of the 2d Cavalry to Des Moines Iowa.

Brown, O. G., capt., ordered to proceed from Fort Robinson, Nebr., to military tournament camp at Des Moines, Iowa, for duty with Second Squadron, 15th Cavalry from Fort Leavenworth, Kan.

Allen, John H., capt., granted leave of absence for two months.

Snyder, Henry D., major, ordered on expiration of present leave of absence to proceed to New York City on business connected with the Medical Supply Depot, and on completion of same to proceed to St. Louis, and assume charge of the Medical Supply Depot in that city, relieving 1st lieut. Ferdinand Schmitter, M. C., who will return to Jefferson Barracks, Mo.

Barney, Fred M., 1st lieut., M. R. C., granted 15 days' leave of absence about Sept. 10, 1909.

Clark, Joseph T., major, Brown, Orville G., capt., Van Dusen, James W., capt., McLellan, George H., Bastion, Joseph E., Miller, Albert L., Wells, Francis M., Burket, John A., 1st lieuts., M. R. C., ordered to proceed to Des Moines, Iowa, to arrive not later than September 17, to participate in a military tournament at that city, September 20 to 25, and on termination thereof, to return to their proper stations.

Sweazey, Verge E., capt., granted two months' leave of absence on surgeon's certificate of disability.

Cutliffe, Wm. O., 1st lieut., M. R. C., granted leave of absence for one month on surgeon's certificate of disability.

Craig, Emmett J., dental surgeon, granted leave of absence for two months.

Mills, Robert H., dental surgeon, ordered to Fort Riley, Kan., for temporary duty.

Sanford, Joseph L., 1st lieut., M. R. C., granted 30 days' leave of absence to take effect on or about Sept. 2, 1909.

Jackson, Thomas W., 1st lieut., M. R. C., on being relieved from temporary duty at Washington Barracks, D. C., by Major C. R. Reynolds, will proceed to Fort Washington, Md., for temporary duty, and on return of Captain Samuel J. Morris, will proceed to Fort Hunt, Va., for duty.

Hart, James W., 1st lieut., M. R. C., relieved from additional duty at Fort Washington, Md., and duty at Fort Hunt, Va., and ordered to proceed to Cayay, P. R., for duty.

Hutton, Paul C., capt., granted leave of absence for one month.

Davidson, Wilson T., capt., relieved from duty in the Philippine Islands, and assigned to duty as surgeon of the transport *Buford*,

on the voyage commencing Sept. 16, 1909, and on arrival at San Francisco will report to The Adjutant General of the Army for further orders.

Fox, James S., 1st lieut., M. R. C., ordered to Fort Andrews, Mass., for temporary duty, and on its completion, to return to his proper station.

Stallman, George P., 1st lieut., M. R. C., granted leave of absence for one month, with permission to apply for 15 days extension.

Medical Corps of the Navy

Changes for the week ended Aug. 28, 1909:

Peck, A. E., surgeon, detached from the Marine Recruiting Station, New York, and ordered to the Marine Recruiting Station, San Francisco.

Murphy, J. A., surgeon, detached from the *Olumpia*, August 27, and ordered to the Marine Recruiting Station, New York.

Rennie, W. H., P. A. surgeon, detached from the *Rhode Island*, and ordered to the Marine Recruiting Station, New York.

Grieve, C. C., P. A. surgeon, detached from duty at the Naval Hospital, Sitka, Alaska, and ordered to the *Independence*.

Brister, J. M., P. A. surgeon, detached from the *Independence* and ordered home to wait orders.

Sinclair, J. A. B., asst.-surgeon, ordered to command the Naval Hospital, Sitka, Alaska.

Brooks, F. H., asst.-surgeon, ordered to the Naval Recruiting Station, Omaha.

Sterne, C. F., asst.-surgeon, detached from the Naval Recruiting Station, St. Louis, and ordered to duty at the Naval Hospital, Puget Sound, Wash.

Thomas, G. C., asst.-surgeon, detached from the Naval Recruitting Station, Omaha, and ordered to the *Rhode Island*.

Steadman, W. G., asst.-surgeon, discharged from treatment from the Naval Hospital, Norfolk, Va., and granted sick leave for six weeks.

Reed, T. W., asst.-surgeon, detached from the Marine Recruiting Station, San Francisco, and ordered to examination for promotion and then to wait orders.

Bloedom, W. A., acting asst.-surgeon, ordered to duty at the Naval Medical School Hospital, Washington, D. C.

Fauntleroy, A. M., P. A. surgeon, detached from the *Hartford*, August 29, and granted leave for one month.

Johnson, J. T., acting asst.-surgeon, ordered to duty at the Naval Hospital, Naval Home, Philadelphia.

Reeves, I. S. K., P. A. surgeon, discharged from treatment at the Naval Medical School Hospital, Washington, D. C., and granted sick leave for one month.

Reeves, I. S. K., P. A. surgeon, unexpired sick leave revoked, ordered to the Navy Yard, Philadelphia, September 3.

Kuder, W. S., asst.-surgeon, detached from the Navy Yard, Philadelphia, September 3, and ordered to Washington, D. C., for examination for promotion and then to wait orders.

Sutton, D. G., asst.-surgeon, detached from the Naval Academy and from the *Tonopah* and ordered to duty in connection with the *Vestal* and to duty on board that vessel when commissioned.

Public Health and Marine-Hospital Service

List of changes for the seven days ended Aug. 25, 1909:

Kalloch, P. C., surgeon, granted 7 days' leave of absence en route to station.

Wasdin, Eugene, surgeon, granted 1 month's leave of absence from Aug. 22, 1909, on account of sickness.

Geddins, H. D., surgeon, detailed to represent the Service at the 6th International Medical Congress to be held at Budapest, Hungary, Aug. 29-Sept. 4, 1909.

Rosenau, M. J., surgeon, directed to proceed to Philadelphia, on special temporary duty.

Corput, G. M., P. A. surgeon, granted 10 days' leave of absence from Aug. 13, 1909, on account of sickness.

Vogel, C. W., P. A. surgeon, granted 3 days' leave of absence from Aug. 23, 1909, under paragraph 189, Service Regulations.

Gwyn, M. K., P. A. surgeon, granted 7 days' leave of absence from Aug. 17, 1909, under paragraph 191, Service Regulations.

Stimson, A. M., P. A. surgeon, granted 7 days' leave of absence from Aug. 16, 1909, under paragraph 191, Service Regulations.

Ebersole, R. E., P. A. surgeon, on expiration of present leave of absence, relieved from duty at Manila, P. I., and directed to proceed to San Francisco.

Wollenberg, R. A. C., asst.-surgeon, granted 2 months' leave of absence from Sept. 10, 1909.

Altree, G. H., acting asst.-surgeon, granted 30 days, leave of absence from Sept. 2, 1909.

Boyd, Frank, acting asst.-surgeon, granted 22 days' leave of absence from Aug. 20, 1909.

Fogarty, J. N., acting asst.-surgeon, granted 18 days' leave of absence from Sept. 4, 1909, with pay, and 12 days' leave of absence from Sept. 22, 1909, without pay.

Frissell, C. M., acting asst.-surgeon, granted 20 days' leave of absence from Aug. 13, 1909; 9 days with pay and 11 days without pay.

MacCaffry, Ward B., acting asst.-surgeon, transferred from Reedy Island Quarantine Station to Cape Charles Quarantine Station, effective Sept. 1, 1909.

O'Rielly, W. J., acting asst.-surgeon, granted 2 days' leave of absence from Aug. 31, 1909.

Thornton, M. J., acting asst.-surgeon, granted 1 day's leave, Aug. 15, 1909, on account of sickness.

Health Reports

The following cases of and deaths from smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service during the week ended Aug. 27, 1909:

SMALLPOX—UNITED STATES

California: Berkeley, July 24-31, 1 case; San Francisco, July 26-July 3, 1 case.
District of Columbia: Washington, Aug. 7-14, 1 case, 1 death.
Indiana: Fort Wayne, Aug. 7-14, 13 cases; South Bend, 1 case.
Iowa: Cedar Rapids, July 1-31, 1 case.
Kansas: Wichita, July 31-Aug. 7, 2 cases.
Missouri: St. Louis, Aug. 7-14, 2 cases.
Montana: Butte, Aug. 5-12, 7 cases.

SMALLPOX—FOREIGN

Belgium: Antwerp, July 17-24, 4 cases.
Canada: Halifax, July 31-Aug. 7, 1 case.
China: Amoy, June 26-July 3, 8 deaths; Kang Thau, June 1-30, 1 case, April 1-June 30, 7 cases, 1 death; Shanghai, July 3-10, 1 death, among natives.
Egypt: Cairo, July 1-8, 1 case, 1 death.
France: Paris, July 24-31, 1 case.
Italy: General, July 25-Aug. 1, 14 cases; Naples, 22 cases, 2 deaths.
India: Bombay, July 6-13, 7 deaths; Calcutta, June 26-July 3, 5 deaths; Madras, July 3-9, 1 case, 1 death; Rangoon, June 26-July 3, 3 deaths.
Mexico: Guadalajara, July 22-29, 1 death; Monterey, Aug. 1-8, 1 death; Veracruz, vicinity, Aug. 12, 6 cases.
Peru: Lima, July 17-24, 1 case.
Russia: Moscow, July 10-24, 71 cases, 9 deaths; Odessa, July 17-24, 4 cases; St. Petersburg, July 10-17, 18 cases, 3 deaths.
Spain: Barcelona, July 19-Aug. 2, 4 deaths; Tarragona, July 19-26, 1 death; Valencia, July 10-17, 6 cases; Vigo, July 24-31, 1 death.
Tripoli: Tripoli, July 10-24, 17 cases, 6 deaths.
Turkey: Constantinople, July 25-Aug. 1, 1 death.

YELLOW FEVER

Brazil: Para, July 10-31, 8 cases, 8 deaths.
Ecuador: Guayaquil, July 10-24, 6 deaths.
Mexico: Colima, Aug. 19, present; Medida, Aug. 6-13, 1 case.

CHOLERA—INSULAR

Philippine Islands: Provinces, June 26-July 3, 110 cases, 92 deaths.

CHOLERA—FOREIGN

China: Amoy, June 26-July 3, 11 deaths; Hankau, July 10-17, 1 case, 1 death; Kang Thau, June 1-30, 2 cases, 1 death, April 1-June 30, 4 cases, 2 deaths.
India: Bombay, July 6-13, 17 deaths; Calcutta, June 26-July 3, 56 deaths; Madras, July 3-9, 1 death; Rangoon, June 26-July 3, 2 deaths.

PLAGUE—INSULAR

Hawaii, Hilo, vicinity, Aug. 19-20, 1 cases, 1 death; Olas, Aug. 20-22, 2 cases, 2 deaths.

PLAGUE

Azores: Terceira, June 16, 3 cases.
Chile: Antofagasta, July 10, in Lazaretto; Iquique, July 11, 7 cases, July 16, 7 cases.
China: Amoy, June 26-July 3, 95 deaths, July 10-17, 73 deaths; Kang Thau, June 1-30, 37 cases, 19 deaths, April 1-June 30, 117 cases, 59 deaths; Hongkong, July 3-10, 4 cases, 2 deaths.
Ecuador: Guayaquil, July 10-24, 4 deaths.
India: General, July 3-10, 558 cases, 462 deaths; Bombay, July 6-13, 21 deaths; Calcutta, June 26-July 3, 41 deaths; Rangoon, 22 deaths.
Japan: Shikoku, July 28, 5 cases, 1 death.
Peru: General, July 3-10, 10 cases, 8 deaths.
Venezuela: Garacas, Aug. 6, 1 case.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phœnix, October 4-5. Sec., Dr. Ancil Martin.
COLORADO: Capitol, Denver, October 5. Sec., Dr. S. D. VanMeter, 1723 Tremont St.
GEORGIA: Regular, Capitol Bldg., Atlanta, October 12. Sec., Dr. E. R. Anthony, Griffin. Homeopathic: Atlanta, October 4. Sec., Dr. R. E. Hinman, 153 Whitehall St.
IDAHO: Boise, October 5-6. Sec., Dr. W. F. Howard, Pocatello.
ILLINOIS: Coliseum Annex, Chicago, October 20-22. Sec., Dr. J. A. Egan, Springfield.
KANSAS: Topeka, October 12. Sec., Dr. F. P. Hatfield, Olathe.
LOUISIANA: New Orleans, October 1-2. Sec., Dr. Felix A. Larue, 211 Camp St.
MICHIGAN: Lansing, October 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: State University, October 5. Sec., Dr. W. S. Fullerton, 214 American National Bank Bldg., St. Paul.
MISSISSIPPI: Jackson, October 12. Sec., Dr. S. H. McLean.
MONTANA: Capitol, Helena, October 5. Sec., Dr. W. C. Riddell.
NEW JERSEY: State House, Trenton, October 19-20. Sec., Dr. E. L. B. Godfrey, Camden.
NORTH DAKOTA: Grand Forks, Oct. 5-7. Sec., Dr. H. M. Wheeler.
OKLAHOMA: Ione Hotel, Guthrie, October 13. Sec., Dr. Frank P. Davis, Enid.
RHODE ISLAND: Room 313, State House, Providence, October 7-8. Sec., Dr. Gardner T. Swarts.
UTAH: Room 207, City and County Bldg., Salt Lake City, October 4-5. Sec., Dr. G. F. Harding, 310 Templeton Bldg.
WYOMING: Laramie, October 20-22. Sec., Dr. S. B. Miller.

Additional Data for the Educational Number

In the list of medical colleges given on page 555 of THE JOURNAL, Aug. 14, 1909, the Educational Number, the University Medical College of Kansas City should have been in-

cluded. That college has adopted the requirement of one year of collegiate work for admission in addition to a four-year high school education, the requirement to go into effect with the session of 1910-11.

Dr. Seneca Egbert, dean of the Medico-Chirurgical College of Philadelphia, writes that instead of 56 graduates, as published on pages 538 and 548 of the Educational Number, that college had 78 graduates.

At a meeting of the faculty of the Starling-Ohio Medical College of Columbus, held since the reports were sent to us, Dr. W. J. Means was elected dean, vice, Dr. George M. Waters.

A new medical building which will be completed about January 1, 1910, is now being erected by the Eclectic Medical Institute at Cincinnati. It will be a six-story structure, will cost about $50,000, and will be connected by covered bridge with the Seton Hospital. Special provision is made for laboratories, lecture rooms, offices and a library.

Medical Economics

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

The outline for the first weekly meeting of the postgraduate course for the third year is given herewith. Owing to unavoidable delay in preparation of the copy, the pamphlets containing the outline for the third year have not been printed, but are in course of preparation and will be ready for distribution by the middle of the month. County secretaries and others desiring copies of the third year course are requested to write Dr. Blackburn, stating the number of copies desired, etc., as the entire edition will be sent to Dr. Blackburn for distribution.

Third Year—First Month, First Weekly Meeting

SURGICAL DISEASES OF THE THORAX

ANATOMY OF THORACIC WALL AND DIAPHRAGM

THORAX: Shape, size, diameters, variations in sexes; osseous boundaries, sternum, ribs, vertebrae. Sternum, shape, location, costal and muscular attachments. Ribs, number, general characteristics and peculiarities. Dorsal vertebræ, characteristics and peculiarities. Costo-sternal and costo-spinal articulations. Muscles, vessels, nerves.

STERNAL REGION: Pectorals, triangularis sterni; internal mammary and branches, veins and lymphatics; nerves.

COSTAL REGION: Pectorals, serratus magnus, external and internal intercostals, number, attachments, functions; intercostal arteries, origin, relations, axillary branches; veins; lymphatics; nerves.

DIAPHRAGM: Position, shape, attachments, portions, openings.

ANATOMY OF LUNGS AND PLEURA

PLEURA: Parietal layer consisting of costal, mediastinal and phrenic portions, important relations of each; visceral layer, reflections, relations; pleural sinus. Mediastinum, portions, important contents of each, lymphatic glands.

LUNGS: Shape, size, costal and mediastinal surfaces, apex, base, borders, relations of structures forming root of lung, bronchial and pulmonary arteries, nerve supply, lymphatics.

ANATOMY OF VASCULAR SYSTEM

PERICARDIUM: Shape, size, layers, relation to chest wall, to surrounding structures, superficial cardiac triangle.

HEART: Size, shape, position, relation to chest wall, to lungs and pleura, muscular structure, situation of valves.

AORTA: Three portions, boundaries and relations of each.

SURFACE ANATOMY

REGIONS OF CHEST: Anterior, posterior, lateral. Outline of heart; apex beat; valves. Outline of lungs; of pleura.

Marriages

H. BROOKER MILLS, M.D., to Miss Caroline Wagner, both of Philadelphia, June 18.

WILLIAM E. PETERS, M.D., Carlisle, Pa., to Miss Mary L. Cain, of Philadelphia, August 20.

RALPH H. AUGUR, M.D., Washington, D. C., to Mrs. Stella H. Townsend, at Washington, August 16.

J. CLINTON MOBLEY, M.D., to Mrs. Julia Catherine Hanson, both of Memphis, Tenn., at Marion, Ark., August 8.

RALPH C. TILLEY, M.D., Lawrenceburg, Ind., to Mrs. Mattie C. Bell Chance Calvert Harris, of Chesterville, Ind., recently.

Deaths

Hiram Landis Getz., M.D. Jefferson Medical College, Philadelphia, 1874; for many years a member of the American Medical Association; first vice-president of the Iowa State Medical Society in 1897; president of the International Association of Railway Surgeons in 1901; president of the Iowa State Railway Surgeons Association in 1899; and first vice-president of the Tri-State Medical Society in 1900; formerly professor of obstetrics and diseases of women and children in the Iowa College of Physicians and Surgeons, Des Moines; for several years city physician of Marshalltown, Iowa, and first physician of Marshall county; chief surgeon of the Iowa Central Railway; district surgeon of the Chicago and Northwestern Railway and local surgeon of the Chicago Great Western Railway; formerly captain and assistant surgeon in the Iowa National Guard and later lieutenant colonel and a member of the governor's staff; president of the local board of U. S. pension examining surgeons; president of the board of education of Marshalltown, and postmaster of that city in 1894; was found unconscious in his room in Jacksonville, Fla., from the effects of morphin and died in St. Luke's Hospital, August 19, aged 57.

Lewis Balch, M.D. College of Physicians and Surgeons, New York City, 1870; formerly professor of anatomy and medical jurisprudence in Albany Medical College; consulting surgeon to St. Peter's Hospital, and attending surgeon to the Child's Hospital; health officer of Albany, and secretary to the State Board of Health; a member of the American Public Health Association; formerly surgeon of the 37th, 71st and 10th regiments, National Guard, State of New York; surgeon of the Second New York Infantry, U. S. V., during the Spanish-American war, and afterward a surgeon of volunteers in the Philippine Islands; in 1900 superintendent of sanitary improvements at Colon, Panama; died in his rooms at the Army and Navy Club, New York City, August 9, aged 62.

Edwin Lesley Marechal, M.D. University of Alabama, Mobile, 1870; a member and president of the Medical Association of the State of Alabama; formerly lecturer on hygiene and medical jurisprudence in his alma mater; one of the organizers of the Baldwin County Medical Association, and county health officer for several years; in 1890 organizer and president of the Alumni Association of the University of Alabama, Medical Department; health officer of Mobile county, and president of the Medical Society of Mobile in 1895; a member of the State Board of Censors, and first editor of the *Mobile Medical Journal*; for fifteen years a member, and for seven years president of the school board of Mobile county; died at his home in Mobile, August 19, aged 59.

Robert Wesley Erwin, M.D. Bellevue Hospital Medical College, New York City, 1870; of Bay City, Mich.; a member of the American Medical Association, American Academy of Medicine and Bay City (Mich.) Board of Health; a member of the local board of U. S. pension examining surgeons; a veteran of the Civil War; at one time superintendent of schools of Harrison county, Ohio, and professor of geometry in the Cooper Institute, New York City; died suddenly at Grand Lake, Mich., August 13, from heart disease, aged 67.

George Francis Shears, M.D. Hahnemann Medical College, Chicago, 1880; president and senior professor of surgery in Hahnemann Medical College; and one of the most prominent homeopathic practitioners of the middle west; consulting surgeon to the Cook County, Streeter and Silver Cross hospitals, attending surgeon to Hahnemann Hospital, director of the Chicago Tuberculosis Institute, and assistant editor of the *Clinique*; died at his home in Chicago, August 27, from paresis, aged 52.

Joseph Alison Scott, M.D. University of Pennsylvania, 1889; of Philadelphia; a member of the American Medical Association; fellow of the College of Physicians of Philadelphia, and a member of the Philadelphia Pathological and Pediatric societies; adjunct professor of clinical medicine in his alma mater; visiting physician to the Pennsylvania Hospital; died at the summer home of his sister in Northeast Harbor, Maine, August 13, from heart disease, aged 44.

Casper K. LaHuis, M.D. University of Michigan, Ann Arbor, 1896; of Zeeland, Mich.; formerly of Kalamazoo and a member of the school board; a member of the Michigan State Medical Society and Kalamazoo Academy of Medicine; formerly assistant in obstetrics and gynecology at his alma mater; died at his home, August 12, from tuberculosis, aged 40.

John Wherrell, M.D. Kansas City (Mo.) Medical College, 1889; professor of internal medicine in the Western Eclectic College of Medicine and Surgery, Kansas City, Kan.; founder of the Kansas Normal School, Paola; and for many years superintendent of schools of that city and Leavenworth; died at his home in Kansas City, Kan., August 12, aged 66.

George Washington Moran, M.D. University of Michigan, Ann Arbor, 1892; a member of the American Medical Association; treasurer of the Michigan State Medical Society; surgeon to the American Shipbuilding Company; chief of staff of St. Vincent's Orphan Asylum, Detroit; died in Harper Hospital, Detroit, August 12, from ptomain poisoning, aged 41.

Adelbert G. Gumaer, M.D. University of Pennsylvania, Philadelphia, 1883; of Buffalo, N. Y.; a member of the American Medical Association; for twenty-three years local surgeon to the Lake Shore and Michigan Southern Railway, and surgeon to the Emergency Hospital; died in Santa Monica, Cal., August 1, from heart disease, aged 57.

Peter James Campbell, M.D. New York University, New York City, 1893; a member of the American Medical Association and the Utica (N. Y.) Medical Library Association; formerly health officer of Utica; died at his home in that city, August 10, from acute nephritis, aged 41.

Gioachino Barabini, M.D. University of Palermo, Sicily, 1901; a member of the American Medical Association and the Italian Medical Society; prominent as a worker among the Italian poor of New York City; died at his home in New York City, August 16, from gastroenteritis, aged 34.

Edward Mortimer Hardcastle, M.D. University of Maryland, 1889; formerly principal of the Easton (Md.) High School and Maryland Nautical Academy; a clergyman of the Protestant Episcopal church; died in Easton, Md., August 15, from tuberculosis, aged 41.

Charles Edward Trotter, M.D. Johns Hopkins University Medical School, 1909; acting assistant surgeon U. S. Navy; was drowned August 11, from a life raft, after the sinking of the U. S. Naval tug, *Nezinscot*, off Cape Ann, Mass., aged 25.

George H. Bailey, M.D. Tulane University, New Orleans, 1861; a surgeon in the Confederate service during the Civil War; formerly of Phoenix, Ariz.; died at the home of his daughter in Anaheim, Cal., August 4, from bronchitis, aged 70.

Joseph H. Hobson, M.D. Washington University, St. Louis, 1895; a member of the American Medical Association; formerly a member of the city council and school board of White Cloud, Kan.; died at his home in that city, July 29, from tuberculosis, aged 40.

John T. Martin, M.D. Cincinnati College of Medicine and Surgery, 1871; formerly of Green Camp and Marion, Ohio; a veteran of the Civil War; died in the Old Soldier's Home, Sandusky, Ohio, August 16, from paralysis, aged 65.

John D. Shaw, M.D. Willamette University, Salem, Ore., 1895; of Salem, Ore.; for several years physician to the Oregon State Penitentiary; died in the Salem Hospital, August 6, from cerebral hemorrhage, aged 47.

Joseph Edward Smith, M.D. Georgetown University, Washington, D. C., 1900; a member of the Kentucky State Medical Association; died at his home in Bardstown, August 14, from Hodgkin's disease, aged 32.

Samuel P. Oldham, M.D. Kentucky School of Medicine, Louisville, 1875; died suddenly at his home in New Castle, Ky., August 12, from cerebral hemorrhage, aged 53.

Charles I. Conover, M.D. Albany (N. Y.) Medical College, 1878; died at his home in Charleston Four Corners, N. Y., August 8, from intestinal obstruction, aged 57.

Levi Fulk, M.D. Bellevue Hospital Medical College, 1874; died at his home in New Kingston, Pa., August 8.

Charles Oxford, M.D. University of Berlin, Germany, 1873; died at his home in Omaha, August 6, from pneumonia.

Medicolegal

General Unsoundness of Mind as a Defense to Crime

The Supreme Court of Pennsylvania says, in the homicide case of Commonwealth vs. Hallowell, where the whole defense rested on general unsoundness of mind, that whether this condition can be urged as a sufficient defense against an accusation of crime depends on the extent and degree of the unsoundness. Any variation, however slight, from normal conditions, implies unsoundness in some degree; and ordinarily, when one is said to be unsound mentally, the expression indicates nothing as to the extent or degree of the variation. There is, however, nothing uncertain or indeterminate in these words when they are used to denote the mental unsoundness which exempts from legal responsibility for what otherwise would be felonious and therefore criminal homicide. The words used in this connection have a fixed and definite meaning. They denote a mind so far devoid of understanding that it is unable to distinguish between right and wrong, and is therefore without freedom of moral action. However unsound in mind a man may be generally, it is only when he has lost utterly his power of moral perception that he ceases to be responsible in the eye of the law. Therefore it is that, whenever insanity is set up as a defense to an accusation of crime, it becomes the duty of the trial judge to clearly define to the jury what kind or degree of insanity absolves, to the end that they may intelligently understand the real point at issue and weigh with discriminating judgment the evidence submitted to them.

The trial judge told the jury in this case that the question was not, "was this prisoner of unsound mind? or, if you choose to put it so, was he insane?" Again, he said: "The question is not whether he is eccentric or peculiar, or what these people (witnesses) call unsound." In his instruction the judge was strictly within the law. What the jury were to determine was a question of legal accountability; and, since this could exist even where there was unsoundness, the statement of the judge was not only entirely correct, but, in view of the character of the testimony he was about to review, it was none too direct or positive; for, however correct the defendant's witnesses were in the opinions expressed that the defendant was a man of unsound mind, it was manifest from the facts given by each in support of such inference, with a few exceptions, that the unsoundness they were considering was not that which in law exculpates.

Evidence of general unsoundness is admissible, of course, for it is only when the whole mental condition of the accused is exhibited that the extent or degree of the insanity can be determined.

Admissible Evidence of Injury to Spine

The Court of Appeals of Kentucky says, in Lexington Railway Co. vs. Woodward, a personal injury case brought by the latter party, that a physician who had made an examination of the plaintiff's person qualified himself to testify as an expert, and the examination which he testified he made was sufficient to enable him to give an opinion on the extent of her injuries. He could testify to any physical fact which he found to exist. He was properly allowed to state that the left leg below the knee was smaller than the right, and that this indicated in his judgment a lack of nutrition. It was true that the plaintiff sued for an injury to her spine and hip; but any symptom on the lower part of the leg which would be confirmatory of the testimony as to the condition of the spine and hip was properly admitted. In spinal injury, effects are often shown in other parts of the body, and if there were no such evidence in other parts it would be a circumstance indicating that the plaintiff's spine was not so badly affected as she claimed.

Procedure in Montana After Revocation of License

The Supreme Court of Montana says, in State, on the relation of Gattan vs. District Court, that the relator was, prior to Nov. 23, 1907, a physician duly licensed by the State Board of Medical Examiners. Complaint having been made to the board that he had been guilty of unprofessional and dishonorable conduct, a trial was had and the board revoked his license. He appealed to the District Court, which held trial Nov. 23, 1907, with a jury of six physicians in conformity with the

statute, Section 1588 of the Revised Codes of Montana. The trial resulted in a verdict finding the charges sustained and affirming the judgment of the board of examiners, and judgment was by the court entered accordingly.

The relator subsequently filed in the Supreme Court his application for a writ of review to annul the judgment so entered against him. It was alleged that the District Court was without jurisdiction to render and enter the judgment because the jury selected to try the charges was not a legal jury, in that the names of the persons constituting it were not drawn from the regular jury box in conformity with the provisions of law on the subject, but that the jurors were selected under arbitrary order and direction of the court, and that the jury, as constituted, consisted of six persons only, whereas the relator was entitled to have the issue involved tried by a constitutional jury of 12 persons, drawn and impaneled as provided by law for all actions and proceedings in the district. But the application must be denied for two reasons:

1. The relator had a right of appeal from the judgment. While proceedings had under the law before the board of medical examiners touching the granting or revoking of a license may not in any sense be regarded as the administration of a judicial remedy an appeal to the District Court from one of its determinations, whereon a trial of the issue is had de novo (anew), must be regarded as an application to that court for a judicial remedy. The appeal is granted as a method of getting the matter involved before a court that it may be determined judicially. It is a special proceeding commenced in the District Court by the filing of the appeal. In all such proceedings the party aggrieved has an appeal to the Supreme Court, provided he avails himself of his right within one year. He may not permit the time for appeal to lapse and then have the judgment reviewed on writ of review.

2. The application did not question the jurisdiction of the District Court to entertain the appeal from the board to it. The only question made with reference to the proceedings there was as to the action of the court in selecting the jury. Its action in this regard, if erroneous, amounted only to error within jurisdiction, and could not be corrected by writ of review. The application for a writ of review must therefore be dismissed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

August 21

1 *Life-Insurance in its Relation to Prevention of Tuberculosis. S. A. Knopf, New York.
2 *Report of Nine Cases of Pellagra. E. D. Bondurant, Mobile, Ala.
3 *Value of Microscopic Examination of the Prostatovesicular Secretion in the Diagnosis and Prognosis of Gonococcus Infection. A. L. Wolbarst, New York.
4 *Multiple Sclerosis. C. D. Fox, Philadelphia.
5 Malformations of the Nasal Septum. J. P. Lewis, Waltham, Mass.
6 Flat Feet. M. Strunsky, New York.
7 *Conservatism in the Use of Flatfoot Plates. R. O. Meisenbach, Buffalo.

1. **Life Insurance and Tuberculosis.**—Knopf believes that in the future the insurance companies will be able and glad to aid in the distribution of literature and information on tuberculosis, and especially its prevention among the public with whom they deal; that the life-insurance agent may by word of mouth impart this instruction, that the people who undertake industrial insurance are alive to the necessity of prevention of tuberculosis, and that they will gladly insure their children against tuberculosis. The Metropolitan Life Insurance Company desires to erect a sanatorium for its employés, which may later be used by policy holders.

2. **Pellagra.**—Bondurant observed a considerable number of cases among negroes in the insane asylum at Mt. Vernon, Ala. In his private practice he saw none before August, 1907, but from that time until May 1, 1909, he saw 9 out of 590 cases seen in all. He reports 9 cases in detail, most of them having been fatal.

3. **Microscopic Examination of Prostatovesicular Secretion.**—Only those cases in which 3 or more examinations were made of the prostatovesicular secretion are included by Wolbarst in his paper. He selected 35 cases because these cases emphasize certain features of this subject that are of more than passing interest. From 3 to 19 examinations of massaged secretion were made in each of these cases, a total of 240 examinations. These patients have been divided into two classes: (1) Those who showed clinical symptoms and came to be treated for them—21 in number; and (2) those who did not show clinical symptoms, but came for examination for some other complaint, or for advice preparatory to marriage—14 in number.

As a result of these investigations, Wolbarst believes that a man may be "cured" of his gonorrhea, so far as symptoms are concerned, and his prostate and adnexa may contain gonococci; that gonococci may be found in clear urine; that gonococci may persist in the prostate for many years, and show no symptoms of any kind; they may not be infectious necessarily; that we can not tell whether or not any given prostate contains gonococci, except by making a large number of examinations of the massaged secretion after stimulation and irritation by silver nitrate, etc.; that though it is conceded that cultures are more certain, when successful, than microscopic examinations, practicing physicians must rely on the microscope for their results. Besides, a negative finding in a culture tube is no more enlightening as to the absence of gonococci in the prostate than is a negative finding on a microscopic slide. In either case the thing sought for has merely not been found, which is a different thing from saying that it is not there. The gonococcus should be sought for until every means is exhausted.

4. **Multiple Sclerosis.**—Fox reports a case in which at first examination the absence of nystagmus, intentional tremor, and impairment of speech caused the incorrect diagnosis of transverse myelitis. Hysteria made its appearance late. The diagnosis was based on transitory but almost total paralysis, the induction of hypnoidal states by lateral fixation of the eyes, and the appearance of an apparently causeless series of syncopal attacks. There were no other stigmata of hysteria except contraction of the visual fields.

7. **Flatfoot Plates.**—Meisenbach emphasizes the harm that may be done by the promiscuous use of flatfoot plates when applied by persons without skill and knowledge.

Boston Medical and Surgical Journal

August 19

8 *Intravenous Administration of Strophanthin in Other Than Cardiac Disease. A. K. Stone, Boston.
9 Psychopathology. B. Sidis, Brookline, Mass.
10 Stenosis of the Larynx. R. H. Johnston, Baltimore.
11 *Tubal Abscess of Unusual Position Accompanied by a Bacteriuria of Renal Origin. A. L. Chute, Boston.
12 Leprosy. C. E. Wells, Tewksbury, Mass.
13 *Two Unusual Cases of Sarcoma. W. A. Smith, Springfield.

8. **Intravenous Administration of Strophanthin.**—Stone agrees with Liebermeister that the intravenous injection of strophanthin enables one to carry along a certain number of severe cases of pneumonia until the patient is able to eliminate the toxin of the pneumococcus and to get on the sure road to recovery. He says that in certain cases of collapse, due to cardiac weakness, the physician has in strophanthin a drug which will act promptly and powerfully and enable the patient to rally, and the heart to resume its work. The large amounts of urine which have been passed by these patients make it seem that the strophanthin has also to do with the production of what Meltzer has called the "life-giving diuresis," by means of which the toxic products are more rapidly eliminated than would otherwise be the case. When a patient has grown weaker and weaker in the course of his disease, whether it be pneumonia or typhoid fever, the cardiac stimulant action of strophanthin will apparently have little effect on the gradually flagging heart action.

In a case of attempted suicide by means of carbolic-acid poisoning, combined with gas poisoning, the patient had a very rapid, almost tic-tac, heart, which was regular, but the sounds were very faint, the pulse of small volume and poor tension. The stomach was washed out; strophanthin was

given in a half-milligram dose, and the pulse soon became markedly stronger, and the next morning was very good. There was suppression of urine, but after twelve hours 15 ounces of urine were drawn, and after this the amount of urine excreted rose to 40 ounces in the next twenty-four hours. In a sudden postoperative collapse, an almost imperceptible pulse of about 150, became fairly strong, and 120 in rate within five minutes after the administration of a milligram of strophanthin. From that time on the pulse grew stronger and the patient was no longer a source of anxiety.

11. **Tubal Abscess.**—Chute believes his case to be of interest not only because of the unusual position of the tubal abscess, but also from the fact that both kidneys, without giving evidence of any infection, were excreting great numbers of organisms. The patient, a woman aged 28, had been delivered of her first child toward the latter part of September. The labor was a long one, and the child was stillborn. According to the history, delivery was followed by a serious postpartum hemorrhage, and later by an attack of sepsis, lasting ten or twelve days. After delivery, it was noticed that there was a visible mass to the left and below the umbilicus. This was supposed to be a much-enlarged uterus. The woman was treated locally for subinvolution, but without effect on the mass. It occupied the place where this patient, when about seven months pregnant, had had an attack of very acute pain, lasting some hours and requiring morphin. The upper limit of this mass was just below the level of the umbilicus. Though there was moderate distention, the mass was perfectly evident on simple inspection. There was tympany over it. It was immovable and moderately tender. Vaginal examination showed a uterus that was unusually high, but not much enlarged or fixed. No connection could be made out between the uterus and the mass. Nothing could be felt in either broad ligament.

An incision over the most prominent part of the tumor showed a mass covered with thickened omentum that lay just to the inside of the descending colon and was adherent to it. The uterus was pulled up and tilted to the left by the left tube, which disappeared into the mass about three-fourths of an inch from its junction with the uterus. A portion of the left ovary projected from the mass above. The left broad ligament was stretched out in such a way as to cover the true pelvis on the left. The ureter could be easily seen coursing through the lower part of the ligament. In attempting to separate this mass from the colon, an abscess cavity was opened and some drams of offensive pus escaped. The cavity was drained by a tube and wicks. No attempt was made at its removal. After the operation, drainage from the cavity was profuse. Gas was passed by rectum and feces as a result of enemas. The distention, however, increased and there was marked peristalsis. On the second day there was pain in the right iliac region, with rigidity at this point. On the third day a fecal fistula appeared, evidently from a perforation of the colon at the point where the attempt was made to separate it from the mass. Though the fistula discharged profusely, it did not affect the distention to any considerable degree. On moving the gauze that had been used to wall off the pelvis, there was a gush of amber-colored fluid from the right side of the pelvis. This fluid was clear and not offensive. No cultures were taken of it. The patient died on the fourth day after operation, apparently as a result of the localized peritonitis in the right pelvis and the chronic sepsis from which she had been suffering. No autopsy was obtained.

13. **Sarcoma.**—The patient, a woman, 73 years of age, had a small lump in the right side of the neck 51 years ago. There is no pathologic report of the specimen removed. There was no return of the trouble until nine years ago, when a bunch began to grow at the site of the old scar. At the time of its removal the tumor was the size of an orange. There is no pathologic report of this specimen obtainable. Two years later, seven years ago, another bunch appeared in the same place and was removed. No pathologic report can be found. December, 1906, she was admitted to the hospital for a growth in the right side of the neck, extending from the median line in front to the median line in the back. Nearly the entire surface of the growth was sloughing, with an intensely fetid odor. The tumor was removed in one mass with a wide skin margin by Smith. The external jugular vein and the facial artery were ligatured and divided; the submaxillary gland and all palpable lymphatic glands were dissected out. It was impossible to close the wound, which, however, healed promptly by granulation without skin grafts. The tumor weighed one pound and was a round-cell sarcoma. In June, 1908, the patient was again admitted to the hospital, presenting in the old scar a tumor the size of an egg. The tumor mass and several glands were removed and the wound sutured. The incision healed by first intention and the patient was discharged in ten days.

The second patient, a woman 72 years of age, accidentally struck her knee against a projecting stick in a wood pile. Two weeks later she noticed a hard lump on the injured knee at the site of the abrasion, which had healed promptly. In six weeks it was the size of an egg, bluish-black in color, and proved to be a small round cell sarcoma.

New York Medical Journal

August 21

14 *Leprosy. C. A. Penrose, Baltimore.
15 *Epidemiology of Leprosy. A. S. Ashmead, New York.
16 *The Pharyngoscope: New Method of Examination of the Nasopharynx and Larynx. H. Hays, New York.
17 *Roentgen Rays in Diagnosis of Carcinoma of the Stomach. G. E. Pfahler, Philadelphia.
18 Hysteria in an Adult Male. R. E. Coughlin, Brooklyn.
19 *Geriatrics. I. L. Nascher, New York.
20 *Action of Glandular Extracts on Tetany after Parathyroidectomy. I. Ott and J. C. Scott, Philadelphia.
21 Acute Uremia Resulting from Turpentine. W. A. Gills, Richmond, Va.

14-15. **Leprosy.**—The papers by Penrose and Ashmead are an excellent exposition of present knowledge of leprosy, especially with reference to the disease as it appears in the United States and in the Bahama Islands.

16. **The Pharyngoscope.**—Hays describes an instrument which, he says, will be an aid to the expert in difficult cases in which either the patient's oropharynx is sensitive or narrow, or in which it is impossible to see clearly the various parts that one wishes to examine. The latest model of the pharyngoscope is composed of a horizontal and a vertical shaft which join each other at right angles, at the outer third, so that the instrument may be used as a tongue depressor. The inner portion of the horizontal shaft consists of a central circular tube with an electric light carrier on either side, the three components being incorporated in a flat piece of metal. From the inner end project the two electric lights which are water tight, give an intense illumination and become only warm enough to keep vapor off the lens. In the central tube is inserted the telescope, which is made on the principle of the Otis cystoscope. To the eye-piece is attached a little metal ball which indicates the position of the lens. This horizontal shaft, including the telescope, is about eight inches long. The widest portion of the instrument, which is at the extreme inner end, is less than five-eighths of an inch, and the flat metal shaft itself measures less than one-half an inch in diameter. The vertical portion is about six inches long and half an inch wide. It is attached to the horizontal portion by a screw joint, and contains the wires for connection with the rheostat or dry cells. Near its upper portion is an arrangement for cutting off the electric current so that the lamps need not be turned on until the instrument is in the mouth.

On account of the cement which holds the lens in place, the instrument can not be boiled, but like the cystoscope it is best disinfected by formalin. For that purpose a metal box is supplied with the instrument which is large enough to contain the horizontal shaft (except the eye-piece), which has a receptacle at one end for formalin tablets and cotton. The instrument is inserted into the mouth like a tongue depressor until the inner end of the telescope is about one-sixteenth of an inch from the pharyngeal wall. When once in place it is held firmly by the examiner, the patient is told to close his mouth and to breathe quietly through the nose. As soon as the mouth is closed, it is observed that the muscles are relaxed and that the nasopharyngeal space is much enlarged. An excellent view of the parts to be seen can be obtained by gazing through the eye-piece of the instrument. In order to keep the patient from breathing in the examiner's face a

small mica plate is supplied which is placed between the telescope and the horizontal shaft.

17. Abstracted in THE JOURNAL, May 15, 1909, p. 1611.

19. **Geriatrics.**—Nascher suggests this term as an addition to our vocabulary to cover the same field in old age that is covered by the term pediatrics in childhood.

20. **Glandular Extract and Tetany.**—Ott and Scott made 133 observations on 60 cats and 2 dogs. The cats were first etherized; then the parathyroids were removed under antiseptic precautions. The thymus was always examined for parathyroids. The cat has usually four parathyroids, but more may exist. In young cats, the parathyroids have a looser anatomic relation to the thyroid than later in life. In the cats the parathyroids are about the size of a date seed and have the color of a miliary tubercle. In many cases some of the thyroid was removed in the desire to obtain all the parathyroids, but enough thyroid was left to maintain its functions. When removal in part of the parathyroids was ineffectual to produce a tetany, then the thyroid was also removed and they always found it contained a parathyroid larger than the normal. In cats when all the parathyroids were removed symptoms of tetany came on in about forty-eight hours, as a rule. The first symptoms were a slowness in movement and a state of apathy. The animals were disposed to remain in one place. First, as a rule, there developed a lifting of the posterior extremities and sometimes of the anterior, as though the animal had been stepping in water. The posterior extremities were stifflike in movement and spread apart in their gait. Then trembling ensued in the extremities, followed by convulsions of the whole body. In the convulsive state the animal usually made loud cries before and after the convulsion. Conjunctivitis was frequently noted in the tetania parathyreopriva. The sense of hearing, sight, smell and taste remained. They did not respond to petting. They also had the projecting abdomen noted by Hagenbach.

Lancet-Clinic, Cincinnati

August 14

22 Some Predisposing Factors of Malignant Disease of the Uterus. G. H. Baker, Cincinnati.
23 Hebosteotomy vs. Cesarean Section, When the Latter is Only Relatively Indicated in Cases of Narrow Pelvis. E. G. Zinke, Cincinnati.

Virginia Medical Semi-Monthly, Richmond

August 13

24 The Epileptic. W. F. Drewry, Petersburg.
25 The Play Impulse and Public Health. W. A. Lambeth, University.
26 Treatment of Angina Pectoris with Report of Cases. A. G. Brown, Richmond.
27 Rheumatic Fever. A. J. Burkholder, Mount Sidney.
28 *Epidemic Pneumonia. S. Mann, Moyock, N. C.
29 The State's Duty in the Fight Against Infectious and Contagious Diseases. J. W. Halford, Chalybeate Springs, N. C.
30 External Accidental Hemorrhage in Case of Normally Situated Placenta. O. Marshall, Crewe, Va.

28. **Epidemic Pneumonia.**—In family P., of 10 exposed, 7 contracted the disease. In family C., of 8 exposed, 4 contracted the disease. In family R., of 6 exposed, 2 contracted the disease. In family R., of 5 exposed, 2 contracted the disease. Besides these 14 cases, 3 cases occurred independently; there was no case of reinfection that Mann knew of. All except 2 of the patients were under 12 years of age, and the physical signs in some of these cases for a time were frequently indefinite. There was considerable gastric and abdominal disturbance. Mann followed the usual expectant plan of treatment with the result that all his patients recovered.

American Journal of Public Hygiene, Boston

May

31 *Typhoid Fever in the Province of Manitoba, with Special Regard to Winnipeg. R. M. Simpson and A. J. Douglas, Winnipeg, Canada.
32 Characteristics of Typhoid in the Middle West. J. S. Pierce, Winnipeg.
33 *Differentiation of Outbreaks of Typhoid Due to Water, Milk, Flies and Contact. J. F. Anderson, Washington, D. C.
34 *Typhoid Bacilli-Carriers. H. Albert, Iowa City, Ia.
35 Investigation of Typhoid Epidemic at Sheboygan, Wis. J. T. B. Bowles, Madison, Wis.
36 Morbidity and Mortality Statistics of Typhoid in the Middle West. C. A. Harper, Madison, Wis.
37 *Epidemiologic Diagnosis and Treatment of Typhoid Outbreaks. H. W. Hill, Minneapolis.
38 *Typhoid in the South. E. C. Levy and A. W. Freeman, Richmond, Va.
39 A Method for the Determination of Nitrates in Sewage and Waters of High Chlorin Content. H. C. McRae, Baltimore.
40 Dextrose vs. Lactose for Detecting the Colon Bacillus. W. R. Stokes and H. W. Stoner, Baltimore.
41 A Method for the Staining of Negri Bodies. D. L. Harris, St. Louis.
42 The Coordination of Laboratory Work and Inspection in Supervising the Milk Supply. W. R. Stokes and T. M. Wright, Baltimore.
43 Experiments on the Putrescibility Tests for Sewage and Sewage Effluents. D. D. Jackson and W. A. Horton.
44 *The Result of Re-incubation and Re-inoculation of Atypical Diphtheria Cultures. B. R. Rickards, F. H. Slack and B. L. Arms, Boston.
45 Report of the Committee on Standard Methods for the Examination of Air. C. E. A. Winslow, E. H. Rickards, J. Weinzirl, J. B. Thomas and G. A. Soper, Boston.
46 Plural Deaths in Families as an Index of the Fatality of Disease. C. V. Chapin, Providence, R. I.
47 Limitation of the Application of the Crude Death Rate in Determining the Healthfulness of Localities. S. J. Byrne, New York City.
48 Mortality Statistics in Canada During the Past Decade. C. A. Hodgetts, Toronto, Ont.
49 Problems of Quarantine in Contagious Disease Work. F. G. Curtis, Newton, Mass.
50 Management of Infectious Diseases in Rural Municipalities. I. Cleghorn, Baldur, Manitoba.
51 Disinfection of Rooms. B. R. Rickards, Columbus, O.
52 *The Pleasures and Hopes of the Health Officer. C. V. Chapin, Providence, R. I.

31, 33, 34, 37, 38, 44. Abstracted in THE JOURNAL, Sept. 12, 1908, pp. 940, 941.

52. Published in full in THE JOURNAL, Feb. 27, 1909, p. 686.

Journal Oklahoma State Medical Association, Muskogee

July

53 Class of Conditions Remarkable for Obscurity and Difficulty of Diagnosis, and Meagerness of our Clinical Knowledge. A. W. White, Oklahoma City.
54 Malingering. R. E. Runkle, Reno.
55 The Ovary: Its Conservative and Radical Attention. C. N. Ballard, Oklahoma City.
56 Drainage in Abdominal Surgery. C. Blickensderfer, Tecumseh.

West Virginia Medical Journal, Wheeling

July

57 Immunity—Its Application in the Therapy and Diagnosis of Tuberculosis. W. M. Babb, Keyser.
58 Tuberculosis—Opening the Eyes of the Layman. J. T. Carskadon, Keyser.
59 The Tuberculosis Exhibit in Wheeling. H. B. Jones, Wheeling.
60 The Tuberculosis Exhibit in Clarksburg. C. N. Slater, Clarksburg.

Archives of Ophthalmology, New York

July

61 Recurrent Hemorrhages in Retina and Vitreous Followed by Retinitis Proliferans in Both Eyes in a Man with Surgical Tuberculosis. C. J. Kipp, Newark, N. J.
62 A Fibrous Pseudolens Taking its Origin From the Tunica Vasculosa Lentis. W. Czermak, Prague, Austria.
63 The Occurrence of Opsonins in the Aqueous Humor. A. Knapp, New York.
64 Conjunctivitis and Purulent Inflammation of the Excretory Ducts of Meibomian Glands Caused by an Encapsulated Gram-negative Diplobacillus. O. Landman, Toledo, O.
65 Chorioretinitis Tumida. C. J. Kipp, Newark, N. J.
66 Transient Cycloplegia Due to Glycosuria. W. H. Roberts, Pasadena, Cal.
67 Re-Attachment in Iridodialysis: A Method Which Does Not Incarcerate the Iris. P. C. Jameson, Brooklyn, N. Y.
68 Visual Disturbance Due to the Use of Hair Dye Containing Anilin. E. Berger, Paris, France.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

August

69 *Mechanism of Occlusion of the Fallopian Tube. E. Ries, Chicago.
70 *Constipation in Women. A. D. Kohn, Chicago.
71 Puerperal Sepsis. H. M. Stowe, Chicago.
72 Gynecology in the Young. J. V. Young, New York.
73 Operative Treatment of Pelvic Infection. G. H. Mallett, New York.
74 Prevention of Perineal Lacerations. E. K. Macomber, Amsterdam, N. Y.
75 *Induction of Labor at Term as a Matter of Routine. A. H. Wright, Toronto.
76 Inversion of Uterus of Two Years and Four Months Duration Cured by Posterior Colpotomy and Posterior Section of the Uterus. E. Sealy, Newark, N. J.
77 Six Successful Cesarean Sections. G. M. Boyd, Philadelphia.
78 *New Hydrostatic Dilator. C. B. Reynolds, Philadelphia.
79 Cesarean Section at Term for Tumor of Retrovaginal Septum. R. Cronson, New York.
80 Sixty Cases of Congenital Hypertrophic Stenosis of Pylorus. C. E. Broderick, Kansas City, Mo.

69. **Mechanism of Occlusion of Tube.**—Ries points out that the infectious contents of an inflamed tube escape through the abdominal end, and we find, therefore, here the oldest changes in the peritoneum, such as chronic thickening of the serosa. This makes a peritonitic ring around the ostium out of a

peritoneal ring. The ring need not be a complete one; part of the ring may be formed by any organ that the contraction of the peritonitic scars brings together. These peritonitic scars, like all peritonitic scars on hollow organs, have a tendency to contract. The escape of fluid from the tube is thereby impeded; the swollen folds of the tube have not sufficient room; the tube becomes dilated; the wall of the tube becomes stretched. The fibrous cicatricial ring gives less than any other part; therefore, the muscular coat and its serosa becomes stretched more than the ring around the ostium. With the inflammation subsiding, as tubal inflammations so frequently do, the contents are absorbed or discharged in one direction or another, the swelling of the folds subsides, the walls become too large and loose. The peritonitic ring thereby gains in mobility and can contract further over the fimbriæ.

The fimbriæ escape being pinched by the ring, or, rather, the fimbriæ being covered with epithelium can not adhere to the peritonitic ring, and escape inward without inversion. The ring can now close completely, and we have a closed tube. The union of the peritonitic ring is a seroserous one, and is therefore—when recent—not very firm, so that by squeezing it, we can force it open and see the fimbriæ inside. At this the septic contents of the tube extend into the channel between the mucous surfaces of the fimbriæ. The remnant of peritoneum on the inside of the funnel and on the serous surfaces of the fimbriæ being in a condition of peritonitis, the peritoneal surfaces can fuse with each other in many conceivably irregular ways, while the mucous surfaces of the tubal fimbriæ being covered with epithelium, do not fuse. The remnant of the cleft between the mucous surfaces of the fimbriæ is then sometimes seen as a small dimple on the inside, which leads to an obturating membrane—the original peritonitic ring.

The fimbriæ are now bunched on the inside of the tube, not really inverted. But if the fluid contents of the tube are again absorbed or discharged into the uterus and the tube collapses, the fimbriæ can not open again on account of the peritonitic adhesions outside, but the bundles of fimbriæ can become more prominent on the inside now, because the distention has stopped, and then such specimens as Orth mentions can be obtained. A new dilatation of the tube will then tend to flatten out all folds of the mucosa, and if the seroserous union between the fimbriæ is strong enough the unyielding lines of fusion will stand out like the radii of a rosette.

70. **Constipation in Women.**—The treatment of chronic constipation as outlined by Kohn is dietetic, mechanical and medicinal. There are, he says, a certain number of cases which can be improved by diet alone. Food rich in cellulose and other waste matter is useful in a large proportion of cases. Best of all is a pure vegetable diet, combined with cooked fruits and coarse cereals. To these may be added certain chemical stimulants, such as common table salt, fats, best taken in the form of butter or olive oil (if the latter is well borne), sugar of milk and malt marrow. If still unsuccessful, one may make a trial of the various bulky mechanical stimuli to the intestine, such as bran, vaselin, if it can be taken, and even sand. If all these dietetic schemes fail, the physician may resort to mechanical means before trying medicines; Kohn has found them valuable adjuvants to the diet in a number of cases. Of these, the best are rectal electricity, given three or four times a week with the abdominal pad localized over the affected area. Any kind of rectal electrode may be used and the treatment given for ten minutes. Faradization with an interrupter is the most effective in bringing up the tone of the bowel in atonic cases, whereas in spastic conditions galvanization carefully applied, with the anode in the rectum, is often beneficial. Other means, such as massage of the diseased portion of the bowel, cold sprays, either of ether or ethyl chlorid, may be of assistance. In stubborn cases oil injections or cool salt water, the last especially when the sphincter is weak, may be added. If, however, as often occurs, the patient drifts back to the old state as soon as the treatment is stopped, or often in spite of all treatment, one must call into requisition the various cathartics.

75. **Induction of Labor at Term.**—During the last three years Wright has induced labor within three days after the patient has reached term as a matter of routine in all cases. The following report will illustrate to some extent the methods employed and the results obtained: Mrs. B., aged 30; second pregnancy, expected confinement, June 10. On the evening of June 10, the nurse was summoned, and on her arrival prepared the patient for labor. On the following morning a vaginal tampon was introduced, after which the patient got up and went about the house as usual, suffering no inconvenience from the tampon. Next morning, June 12, the tampon was removed and another introduced. When this was removed on the following day, June 13, the cervix was softened, os softened and slightly dilated, pelvic floor and vulva softened and dilatable. A bougie was then introduced into the uterus and a tampon into the vagina. Uterine contractions commenced about midnight, fourteen hours after introduction, and the child was born four hours after. Labor was easy.

It was noticed in this and other similar cases that it was easy to induce labor at term. The patient is not, as a rule, excited or alarmed. After the tamponade the patient can generally go about and do her ordinary work, and sometimes does not even know that the vagina is plugged. As a rule, she does not know after the introduction of the bougie that anything of the sort is in the uterus. After such introduction, however, it is not considered advisable to allow the patient to walk about. The vaginal tampon appears to have a two-fold effect: First, it softens and dilates the cervix and tends to cause uterine contractions. Second, it softens and dilates the vagina, pelvic floor, and perineal body in a way that makes expulsion or extraction through these parts much more easy than under ordinary circumstances.

78. **New Hydrostatic Dilator.**—Reynold claims that his hydrostatic dilator has for its chief advantage the ease with which it can be introduced into the parturient cervix canal without resorting to an anesthetic. It consists of a reinforced rubber bag with a hollow rubber stem perforated with four holes and a solid rubber tip which extends to within one-half inch of the base of the bag. In its collapsed condition it resembles a right-angle triangle, the stem being a part of the perpendicular. To introduce the bag, a blunt-pointed metal stylet is inserted into the rubber stem until it impinges against the solid rubber tip; the bag is then rolled around the rubber stem as one would roll an umbrella. The rolled bag, which is about the size of one's middle finger, is held in the palmar surface of the hand, with the tip of the bag even with the tips of the index and middle fingers. The labia are separated, and the bag, anointed with glycerin, is inserted into the vagina until the finger-tips touch the posterior lip of the cervix. Force is exerted on the stylet by the external hand and the bag is gently pushed through the cervical canal. The fingers of the internal hand hold the bag in position while the stylet is being withdrawn. Sterile water is then forced through the rubber stem causing the bag to unroll and become distended. A Davidson or special syringe can be used for the purpose. When the bag is distended it is cone-shaped. A clamp can be placed on the rubber stem and traction made, if indicated.

Wisconsin Medical Journal, Milwaukee

July

81 *Medicine in Wisconsin. G. E. Seaman, Milwaukee.
82 Relationship Between Bovine and Human Tuberculosis. W. G. Clark, Marinette.

81. Abstracted in THE JOURNAL, July 24, 1909, p. 315.

California State Journal of Medicine, San Francisco

August

83 Psychotherapy. W. J. Barlow, Los Angeles.
84 Trichinosis. A. M. Tower, Lodi.
85 *Hypertrophic Pyloric Stenosis with Autopsy Findings. A. B. Spalding, San Francisco.
86 Chyluria with a Vesicle Sinus. S. Pope, Watsonville.
87 Therapeutics. J. L. Avey, Redlands.
88 Sanitary Supervision of Communicable Diseases by the Department of Public Health. R. G. Brodrick, San Francisco.
89 Obstruction of Common Duct in Chronic Cholecystitis Without Stone. A. S. Lobingier, Los Angeles.
90 *Galactoxismus. W. W. Roblee, Riverside.
91 Professional Work as It Connects with the Medical Society and the General Public. W. T. Barry, Santa Barbara.

92 The Toxemic Factor in Rheumatoid Arthritis. C. C. Warden, Los Angeles.
93 Relation of Rat Leprosy to Human Leprosy. W. B. Wherry, San Francisco.
94 Transient Cycloplegia Due to Glycosuria. W. H. Roberts. Pasadena.

85. **Hypertrophic Pyloric Stenosis.**—The stenosis in Spalding's case seems to have arisen from an hypertrophy of every muscular integer of the pyloric division of the bowel, and probably dated back to a very early period of the child's intrauterine life.

90. **Galactoxismus.**—Probably the most dangerous poisons occurring in milk are those resulting from bacterial growth. This should lead to renewed efforts looking toward an uncontaminated milk supply. The bacterial growth should be reduced to a minimum and especially is that true of the colon group. Mineral poison may occur in the milk from the use of metal containers, but this is not a common source of poisoning. Of the medicines excreted by way of the milk, senna and calomel should be especially borne in mind. Probably no other drugs, when given to the mother in ordinary medicinal doses, would appear in the milk in sufficient quantities to poison an infant. Fruit acids and alcohol are not thus excreted. In California, aside from the plants which affect the taste, odor and color of the milk, but are not otherwise of moment, probably the death camas is the only one that needs to be watched for and this only in the northern valleys. This question, however, should be more carefully studied, and it is quite possible that more plants will be found to poison the milk. Dairy cattle should be fed on well-cured alfalfa or wheat hay, and not be allowed to wander at random in a pasture. Even harmless weeds often change the odor and taste of the milk, and, doubtless, to some extent, tend to upset the infant's digestion.

Journal Tennessee State Medical Association, Nashville

July

95 *Appendicitis. J. H. Carter, Memphis.
96 *Intestinal Obstruction. J. W. Brandau, Clarksville.
97 Extraction of the Opaque and Partially Opaque Lens in its Capsule. L. B. Graddy, Nashville.
98 Intubation and Antitoxination in the Worst Forms of Laryngeal Diphtheria. J. M. Troutt, Jackson.
99 *Physiologic Laws Governing the Action of Purgatives. G. E. Pettey, Memphis.
100 The State Sanatorium in Prevention and Cure of Tuberclosis. D. L. Wilder, Knoxville.

95, 96, 99. Abstracted in THE JOURNAL, May 1, 1909, pp. 1450, 1451.

American Journal Medical Sciences, Philadelphia

August

101 Achylia Gastrica. C. G. Stockton, Buffalo, N. Y.
102 *Duodenal Ulcer and its Treatment. M. Einhorn. New York.
103 *Clinical Experiments with Homologous Vaccines in Septic Endocarditis and Pyemia. W. G. Thompson, New York.
104 Acute Gangrenous Pancreatitis: Report of Case. L. Jurist, Philadelphia.
105 *The Typhoid Cutaneous Reaction. C. Floyd and W. W. Barker, Boston.
106 Sarcoma of the Stomach: Two Cases. L. Clendening, Kansas City, Mo.
107 Endemic Amebic Dysentery in New York: Its Distribution in North America. H. S. Patterson, New York.
108 Blood Cultures in Human Glanders. B. B. Crohn, New York.
109 *Simple Method of Estimating the Common Variations and Deformities of the Foot. H. O. Feiss, Cleveland, O.
110 My Simple Method for the Quantitative Determination of Pepsin in a Given Gastric Juice. H. Illoway, New York.
111 Adenofibroma of the Male Breast. R. T. Woodyatt, Chicago.
112 Oculomotor Paralysis Accompanied by Facial Palsy, Neuroparalytic Keratitis and Hemiplegia. B. Chance, Philadelphia.
113 *Insanity, Responsibility and Punishment for Crime. J. J. Walsh, New York.

102. **Duodenal Ulcer.**—Einhorn says that the treatment should at first be medical. In the mild cases regulation of the diet (frequent meals, abstention from highly seasoned substances, acids and too fatty foods), improving the general condition by means of iron, arsenic, cold sponging, good air, avoidance of bodily exercise, and the use of alkalies, are sufficient to effect a considerable amelioration, if not a cure. In several cases, olive oil (two tablespoonfuls morning and evening) seemed to be of service. In graver cases of duodenal ulcer (hemorrhages, severe pain, etc.) a strict ulcer cure, with rest in bed and rectal elimination, and afterward fluid diet, must be instituted. In these cases large doses of magnesia and bismuth are of benefit; calcined magnesia, 0.5 gm. (8 grains) bismuth subnitrate, 2 gm. (30 grains), in powders—one powder three times a day, one-half hour before meals. If a strict rest cure has been unsuccessful, or if we have to deal with severe hemorrhages endangering life, and returning frequently, or if obstinate spasm of the pylorus occurs, associated with severe pains in the pyloric region and slight peristaltic restlessness of the stomach, an operation (usually gastroenterostomy) is indicated.

In duodenal ulcer the clinician must advise surgical treatment sooner than in gastric ulcer, as the former, through its complications (hemorrhages, perforations, stenosis of the pylorus), endangers life much more readily than the latter. Gastroenterostomy in these cases is fortunately attended with good results. The ulcer will then soon heal, as the gastric juice does no longer flow over the ulcerated surface in the duodenum or irritate it. At all events, the dangers of hemorrhage, perforation, and pyloric stenosis are thereby prevented.

103. Abstracted in THE JOURNAL, June 5, 1909, p. 1875.

105. **Typhoid Cutaneous Reaction.**—In a previous paper by Floyd and Barker it was shown that cellular sensitiveness, as shown by the ophthalmic test, lasted only as long as the active stage of the disease. They then sought to determine, if possible, if this sensitiveness affected the skin as well as the conjunctiva, and if so, whether it could be used diagnostically. Typhoid bacilli of high virulence were grown in pure culture on agar-agar for twenty-four hours, at 37 C. The growth was then washed off with normal saline solution and the emulsion incubated for four days. At the end of this period it was sterilized in a hot water bath at 60 C. for one-half hour, and then standardized after the method of Wright. The sterile emulsion was then centrifuged and the clear supernatant fluid used for inoculation. The solution used was considerably stronger than that used in the ophthalmic test, being the extract of one billion bacilli. In some instances centrifugalization was omitted and the whole emulsion used for inoculation, with the result of more marked reactions. A standard solution was used in all instances, and not an emulsion of the homologous bacillus in the individual case. In making the test, exactly the same technic was followed as in obtaining the cutaneous reaction in tuberculosis. In all, there were 48 inoculations on 47 patients, of whom 30 were ill with typhoid fever, 2 with *Bacillus paratyphosus* injection, 2 with unclassified fever (clinically not different from typhoid fever), 8 with tuberculosis, 1 with pneumonia, 1 with acute articular rheumatism, 1 with pernicious anemia, and 2 were apparently normal individuals.

Of the typhoid fever cases, the reaction was positive 19 times, negative 9 times, and rendered unsatisfactory by the patient twice. One of the cases of unclassified fever responded to the test, although giving no other evidence of typhoid infection. Neither of the cases of paratyphoid fever gave any reaction whatever. With the exception of a slight reaction in the patient having pneumonia, all the definite non-typhoid cases gave no reaction. All the positive reactions occurred during the active period of the disease, the single patient who was inoculated twice giving a much more striking result at the first inoculation than at the second. The failure of the cases of *B. paratyphosus* infection to respond to the test may be due to the different character of the organism causing the infection. No attempt has been made to discover how early this reaction appears in the course of the disease. The value of the reaction in diagnosis is problematic.

109. **Deformities of Foot.**—In examining the malformations of the body there is no process more valuable than that of studying the relationship of bony landmarks to one another. In the case of the foot, no such method has ever been advanced, and with this in mind, Feiss selected certain landmarks for study. The ones chosen are the lower posterior corner of the internal malleolus, the tubercle of the scaphoid, and the lower tubercle on the head of the first metatarsal. In order to make proper observations, a standard method of estimation had to be applied. A wooden box was constructed, consisting of three sides—a base, a posterior side, and a lateral side. Its dimensions were 12x12x5 inches. The box was placed on the seat of an ordinary chair. The right foot was

used. The subject stood on the floor with the left foot straight, nd the right knee bent. Then the right foot was placed in the box, the calf just touching the edge of the box, and the heel resting in the corner. The weight of the body was therefore transmitted through the left leg. In this way the foot could be examined in a definite and uniform position without weight-bearing.

The points marked were the posterior inferior corner of the internal malleolus, the tubercle of the scaphoid, and the lower tubercle of the first metatarsal. The distance of the scaphoid tubercle from the line connecting the internal malleolus with the lower tubercle of the head of the first metatarsal was measured as follows: A thin transparent celluloid rule provided with a scale was applied to the foot so that its upper edge coincided with the dots on the head of the first metatarsal and on the corner of the internal malleolus. Then the distance of the tubercle of the scaphoid from the edge could be read through the transparent rule by means of the scale (the corners of this rule were cut off so that they would not interfere with the sides of the box. The average age of the 100 young men was found to be 21.6 years, the youngest being 17 and the oldest 34 years. The average distance of the tubercle of the scaphoid from the lines connecting the internal malleolus with the lower tubercle of the head of the first metatarsal was found to be 0.49 inch. In only 9 cases was the tubercle less than one-fourth inch below the line, and in only 4 cases was it more than three-fourths of an inch below the line. Therefore the great majority of cases show the tubercle depressed from one-fourth of an inch to three-fourths of an inch, which in itself is a large variation (one-half inch).

113. **Punishment for Crime.**—Walsh holds that the term insanity is so vague that its use as a plea to enable the criminal to escape punishment is not justifiable in the present state of our knowledge. Responsibility differs in different individuals, but it is never quite eliminated, except in the absolute idiot. For those of lowered mentality, even the animals, punishment has a good effect. Punishment is not revenge, but is meant to deter the individual criminal, and above all to deter others tempted to criminal acts. Punishment is more needed for those of lowered mentality, of whom the expert may well declare that they are insane, than it is for the normal. Subrational individuals with the cunning of the insane will take advantage of our leniency if present conditions are allowed to continue and we shall have a riot of crime by personal violence.

Journal Arkansas Medical Society, Little Rock

July

114 Tuberculosis as a House Infection. D. S. Warren, U. S. Public Health and Marine-Hospital Service.
115 *Research Work in Syphilology. L. R. Ellis, Hot Springs.
116 Pathology of Mitral Lesions. O. K. Judd, Little Rock.
117 *Duty to the Layman in Preventive Medicine. H. H. Niehuss, Wesson.
118 *Progress of Surgery. A. E. Sweatland, Little Rock.
119 *Responsibility of Surgeon in Gynecologic Conditions. C. S. Pettus, El Dorado.
120 Syphilis. G. M. D. Cantrell, Little Rock.
121 The Paucity of Attendance at Medical Societies. T. W. Hurley, Bentonville.

115, 117, 118, 119. Abstracted in THE JOURNAL, June 19, 1909, p. 2018.

Journal of the Medical Society of New Jersey, Orange

August

122 *Problems Confronting the Component Societies. D. Strock, Camden.
123 *Influence of Sleep on Arteriosclerosis. W. W. Beveridge, Asbury Park.
124 *Chloroform the Anesthetic in Throat Operations. F. F. C. Demarest, Passaic.
125 Historical Review of the Progress of the Practice of Medicine from 1865 to 1909. B. A. Waddington, Salem.
126 Cystic Carcinoma of a Supernumerary Ovary. F. H. Glazebrook, Morristown.
127 *Appendicitis. F. N. Donohue, New Brunswick.
128 Imperforate Anus. F. C. Henry, Perth Amboy.

122. Abstracted in THE JOURNAL, Aug. 7, 1909, p. 477.

123. Published in the *Virginia Medical Semi-Monthly*, July 23, 1909, and abstracted in THE JOURNAL, July 31, 1909, p. 401.

124. Abstracted in THE JOURNAL, July 31, 1909, p. 401.

127. **Appendicitis.**—Donohue's patient was taken ill with severe abdominal pain, not localized in any particular spot; temperature was 102 F., and there was some pulse disturbance. This pain continued for two or three days and disappeared. Two weeks afterward the man was taken ill with the same kind of pain in the same locality, attended with fever, lasting a little longer time and finally disappeared. About two weeks subsequently he was taken ill again with pains in the lower abdomen and had some bladder symptoms—frequency and difficulty in urination. He complained of pain in the lower abdomen; difficulty in urinating; no vomiting or constipation, temperature in morning was 102 F.; in evening, 103 F.; pulse was 110 in morning and 120 in evening. On examination a lump about the size of a cocoanut was found in the hypogastric region, extending over to the left side of the umbilicus; it was fluctuating and tender to the touch. A diagnosis of postperitoneal abscess was made and operation advised. An incision was made on the left side, the same that is made for ligation of the external iliac artery, and when the peritoneum was reached to push this aside and open the abscess extraperitoneally. A free incision was made and when the peritoneum was reached it was pushed aside and the lump was carefully examined. It fluctuated and was felt to pass over near the appendical region. By bimanual palpation it was pretty definitely made out that it was of appendiceal origin. The incision was closed, sealed with collodion and dressed. A second incision was made over the appendical site, but a little more internal and the peritoneal cavity opened. The appendix was found in an abscess cavity behind the bladder, perforated at the tip and diseased all the way up to its junction with the cecum. It was removed and the cavity was washed out and drained with a dressed tube. The patient made a smooth recovery.

Journal South Carolina Medical Association, Florence

July

129 Sources and Modes of Infection in Tuberculosis. M. P. Ravenel, Madison, Wis.
130 Sanitation in Small Towns. W. Egleston, Hartsville.
131 Treatment of Ophthalmia Neonatorum. J. W. Jervey, Greenville.
132 Mucous Colitis. A. G. Eaddy, Timmonsville.
133 Operations for Complete Removal of the Mammary Gland for Malignant Growths. R. S. Cathcart, Charleston.

Annals of Ophthalmology, St. Louis

July

134 Ocular Therapy of the Ancient Egyptians. O. Wilkinson, Washington, D. C.
135 William Charles Wells, American Pioneer in Ophthalmology. N. B. Jenkins, New York.
136 Chorioidal Hemorrhage Following Operations on the Globe. W. C. Posey, Philadelphia.
137 Optic Atrophy in Syringomyelia; Congenital Cataract with Unusual Atrophy of the Iris from Secondary Glaucoma. E. A. Shumway, Philadelphia.
138 Hole at the Macula. W. Zentmayer, Philadelphia.
139 Visual Acuity Under Definite Conditions is an Index of the Strength of the Necessary Spheric Lens (Plus or Minus) Which Will Give a Vision of 6/6 or More. J. Thorington, Philadelphia.
140 Chart for the Axis of Astigmatic Glasses. J. H. Claiborne, New York.
141 Case of Avulsio Bulbi. C. Williams, Philadelphia.
142 Hereditary Blindness and its Prevention. C. Loeb, St. Louis.

Alabama Medical Journal, Birmingham

July

143 Blood Transfusion. J. D. S. Davis, Birmingham.
144 The Psychic Department and Frequent Lines of Practice. J. T. Searcy, Tuscaloosa.
145 Perforating Wounds of the Intestine, from Gunshot and Stab. J. W. Watts, Birmingham.
146 Subclavian Aneurism: Report of Successful Ligation in First Surgical Division. E. M. Prince, Birmingham.
147 The Physician's Duty. W. W. Harper, Selma.
148 Wassermann Reaction for the Sero-Diagnosis of Syphilis: Report of Four Cases. J. P. Long, Birmingham.
149 Medicine and Sociology—Their Relation in the Past and Present. W. D. Partlow, Tuscaloosa.
150 Pathologic Action and Therapeutic Application of the Infundibular Portion of the Pituitary Gland. R. A. Bate, Louisville, Ky.

Chicago Medical Recorder

July

151 Development of Medical Science During the Last Few Decades. A. D. Kohn, Chicago.
152 Sociologic Aspect of Medical Charities. A. Hamilton, Chicago.

153 *Prolonged and Tedious Labors and Forceps Deliveries Compared as Causes of Epilepsy, Idiocy and Cerebral Diplegias. J. W. Putnam, Buffalo.
154 Asthmas and Their Treatments. G. F. Butler, Chicago.
155 Seborrheic Dermatitis. A. J. Croft, Chicago.

153. Published in *The Buffalo Medical Journal*, February, 1909, and abstracted in THE JOURNAL, March 13, 1909, p. 923.

Illinois Medical Journal, Springfield

July

156 *Gallstone Disease. J. B. Deaver, Philadelphia.
157 The Doctor in Civic Life. J. A. Witherspoon, Nashville, Tenn.
158 Some Surgical Diseases of the Stomach and Duodenum and Operative Treatment. J. A. Day, Jacksonville, Ill.
159 Rupture of the Uterus During Labor; Operation; Recovery. E. L. Moorehead, Chicago.
160 *Brain Surgery. C. Wagner, Chicago.
161 Foreign Bodies in the Intestines. H. Scott, Chicago.

156. Abstracted in THE JOURNAL, June 12, 1909, p. 1953.

160. Wagner.—Published in *Chicago Medical Recorder*, June, 1909.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

August 7

1 *Progress in Obstetrics. Sir J. W. Byers.
2 *Plea for a Rational Puerperium. F. W. N. Haultain.
3 Congenital Malformations of Palate, Face, and Neck. A. Keith.
4 *Head-Nodding in Infants. C. Gibson.
5 *Clonic Spasm of the Diaphragm, Associated with Cervical Rib. G. B. Hunt.
6 *Rare Variety of Femoral Hernia. E. C. Bevers.
7 *Method of Temporarily Removing Color Blindness. G. A. Stephens.

1. **Progress in Obstetrics.**—That the ideal to be aimed at in obstetric practice is not merely a living mother and a living child, but rather a living healthy mother and a living healthy child, is the keynote of Byers' paper. He cites statistics to show the present condition of obstetric medicine as practiced in two Irish maternities—the Rotunda Hospital in Dublin, the largest midwifery institution in the British Empire, and in the Maternity Hospital, Belfast. From Nov. 1, 1907, to Oct. 31, 1908, 2,060 patients were confined in the Rotunda Hospital with only 7 deaths, and in only 126 was the temperature over 100.4 F.—that is, a percentage morbidity of 6.12. Of the 7 deaths, only 3 were due to infection. One patient was admitted infected, another had been examined outside, and the third was a case of incomplete abortion with a fetid discharge on entering the hospital. In the Maternity Hospital, Belfast, there occurred during 1907 and 1908, 12 deaths out of 1,355 deliveries, and of these only 4 deaths were due to puerperal infection. (In one case the patient had been in labor for twenty-four hours attended by an unqualified midwife before admission; another woman, with a contracted pelvis, had been in labor several days before admission; and in a third case the child was born in an advanced state of decomposition.) Further, in 1908, the cases of morbidity from every cause estimated on the standard that the occurrence of one temperature of 100.4 F. indicated a pathologic condition, were 9.42 per cent., which is distinctly lower than at Hofmeier's well-known clinic. Again, owing to the aseptic and antiseptic management of the mother during her confinement, as well as by the adoption of special prophylaxis in the care of the child, cases of ophthalmia neonatorum in both maternities are now extremely rare. Such splendid results have been brought about by recognizing that, in at least 75 per cent. of the cases, labor is a natural process not needing interference, and that its tendency is to prevent infection, and that our duty is to follow and aid it, and to interfere only when the resources of Nature fail to protect the interests of mother or child. The uncalled for use of the forceps, early rupture of the membranes, douching—unless under very special circumstances—and the improper management of the third stage of labor are things of the past in properly conducted maternities. By the thorough application of the most minute surgical cleanliness as regards patient, nurse, and doctor during labor and the puerperium; by the adoption of Credé's teaching, that internal examination of parturient women should be altogether avoided or restricted within the narrowest possible limits (it can be well replaced by external examination) and by the immediate suture of any laceration occurring during the process of labor, these excellent results are possible of attainment.

2. **Rational Puerperium.**—The mode of management adopted by Haultain is as follows: The puerpera, if willing, is encouraged to sit up in bed to meals on the second day. As early as she feels inclined thereafter she is allowed to leave her bed and sit up for an hour. On the following day this is repeated morning and evening. The next day two hours, morning and evening, are spent out of bed, the patient sitting and walking a little, if she so desires. The fifth day after rising is practically spent out of bed, with the exception of a few hours rest in the afternoon, and on the tenth day the patient leaves the hospital. The number of patients who followed this line of treatment was 100. All the patients sat up in bed on the second day; 40 rose on the third day; 35 rose on the fourth day; 25 rose on the fifth day. Of the 100 cases, 47 were primiparæ and 53 multiparæ. Each was carefully examined before leaving the hospital, and as many as possible six weeks later. The morbidity in these cases—that is, a temperature over 100 F. or pulse over 90 for twelve consecutive hours—was represented by three cases. Two patients developed infective temperature on the third day. One of these left the hospital well on the sixteenth, the other on the twenty-eighth day. Pelvic examination on the day of leaving hospital (tenth to twelfth day) showed the pelvic organs to be normal, except in two cases, where a slight retroversion of the uterus was present. In one case there was considerable varicosity of the veins of the legs, but the woman remarked that it was not nearly so bad as after previous confinements—this being her seventh. All the women examined six weeks and more after confinement showed involution to be thorough, and the position of the uterus normal, with the exception of two, being those previously noted as having retroversion. Many women voluntarily expressed the opinion that they had never felt so well previously, and from the others when asked, there was no dissentient voice.

4. **Head-Nodding in Infants.**—The two cases reported by Gibson had many things in common, confirming the theory advanced by Raudnitz and J. Thomson, who contended that it is due to the dim light in which these babies are living and try to use their eyes, and this theory fits these two subjects well; the seasonal incidence, in the darkest months of the year; the environment—both these babies living during the day in dark, ground-floor rooms, with one window, facing the east, but shut out from most of the sky by tall buildings within a few yards, and neither baby was often in the open air. So far as could be learned the two had never been in contact, but their homes were less than fifty yards apart. The babies recovered under hygienic and dietetic treatment. Both cases ran a course of between five or six weeks.

5. **Clonic Spasm of Diaphragm.**—There would appear to be two ways in which a cervical rib might cause diaphragmatic spasm: (1) by pressure on the vagus in the neck, causing a reflex contraction, much as derangement of the stomach may produce the ordinary hiccough by irritation of the terminations of the vagus in the gastric mucosa; or (2) by so exalting the normal impulse regularly passing down the phrenic nerve to produce the usual inspiratory contraction of the diaphragm by direct irritative pressure on that nerve trunk so as to produce a violent spasmodic contraction of the muscle. The latter appears to Hunt to be far the more probable explanation. In his case the vagus in the carotid sheath lay some distance internal to the cervical rib, whereas the phrenic nerve in its course along the anterior surface of the scalenus anticus muscle must be exposed to pressure of a large cervical rib near the articulation with the scalene tubercle of the first rib. The fact that removal of the rib, alone of the treatments tried, was directly followed by cessation of the spasm, is, he thinks, another argument that the spasm was probably caused by pressure of the rib.

6. **Femoral Hernia.**—Bevers' patient, a woman of 58, had undergone an operation for femoral hernia in the right side three years previously. For six days there had been abdominal pains and vomiting, the symptoms commencing suddenly

while she was at work in her garden; for two days there had been constipation which was not quite complete, as flatus had been passed, and repeated enemata had produced a slight result. When seen, the pulse was 112, temperature normal, the abdomen was distended, and there was some general tenderness. Just below and parallel with Poupart's ligament on the right side there was an old scar, and at the outer extremity of this scar external to the femoral vessel a little thickening could be felt; this small thickening was not tender and the patient declared it had been present ever since the previous operation; there was no swelling in the situation of the femoral canal. Owing to the fatness of the patient, the presence of the old scar and the unusual situation of the slight swelling present, Bevers found it difficult to decide whether the patient was suffering from a hernia strangulated in an abnormal situation, or from some other form of intestinal obstruction. He therefore opened the abdomen in the middle line below the umbilicus; distended small intestine at once presented, and a little examination proved that there was a Richter's hernia into a small hernial opening just external to the femoral artery.

7. **Temporary Removal of Color-Blindness.**—Going on the theory that anything that would improve the movements of the cells ought to have the effect of stimulating the retinal cells to more ready response to color sensations, and as the calcium salts have that stimulating effect on the body cells, Stephens came to the conclusion that a big dose of calcium lactate ought to remove color blindness, if only temporarily. The first patient to undergo the experiment was a medical man whose response to green sensations was *nil*, but who, after only 10 grains of calcium lactate was able to appreciate and differentiate green-colored articles. In the next case, Stephens gave 10 grains of the drug at 2 o'clock, and another 10 grs. at 3. At 4 o'clock he found that response to all the colors was distinctly better. The only objection to the experiment was that the patient had a headache for a few hours afterward. In the third case he gave only 20 grains, but the result was just as satisfactory and quite as conclusive.

Lancet, London

August 7

8 *Progress in Obstetrics. J. W. Byers.
9 *Malformations of the Heart. A. Keith.
10 *Method of Giving Ether by Means of Nasal Tubes. H. M. Page.
11 Pressor Bases in Normal Urine and their Diminished Excretion in Gouty Urine; the Excretion of Chlorids in Gout. W. Bain.
12 Relative Toxicity of Chloroform and of Carbon Tetrachlorid. A. D. Waller.
13 Medical Relief and Public Assistance. C. S. Loch.
14 Ameliorative Measures Indicated by School Medical Inspection. J. R. Kaye.

8. See Abstract No. 1.

9. **Malformations of the Heart.**—The malformations discussed by Keith are the following: (1) Subdivision of the right ventricle; (2) cases in which the developmental expansion of the infundibulum is arrested; (3) hearts in which there is almost complete arrest in the developmental expansion of the infundibulum; (4) cases in which the stenosis is merely due to fusion of the semilunar valves; (5) cases in which the infundibulum is present and the body of the right ventricle is small or absent; (6) cases of subaortic stenosis; (7) cases of congenital aortic stenosis.

10. **Ether by Means of Nasal Tube.**—Page employs the method which he says was devised by Crile.

Medical Press and Circular, London

July 21

15 Infantile Scurvy. T. D. Lister.
16 Symphysiotomy and Hebosteotomy. R. E. Runge.
17 Influence of Alcohol on Immunity. T. Laitinen.
18 Extraction of Cataract in the Lenticular Capsule. W. E. McKechnie.
19 *Treatment of Morphinism. W. O. Jennings.
20 Acromegaly. J. C. McWalter.

July 28

21 Acute Tuberculous Rheumatism. A. Poncet, and M. Leriche.
22 A British Medical Reminiscence. H. M. Jones.
23 Immunity. E. Metchnikoff.
24 Certain Aspects of Medical Journalism. D. Walsh.

August 4

25 Heredosyphilis. D'A. Power.
26 Immunity (concluded). E. Metchnikoff.
27 The Dietetic Dechloridation Cure in Bright's Disease. F. Widal.
28 Progressive Medicine and the Outlook on Tuberculosis. R. W. Philip.

19. **Treatment of Morphinism.**—For many years Jennings has been using heart tonics and bicarbonate of soda in morphinism, not as a "cure," but as a part of the treatment which remedies the physiologic disturbances, caused by suppression, and which, by alleviating two of the principal factors of craving, reduces the otherwise intolerable wretchedness of an ordinary weaning to a perfectly bearable minimum. In morphin addicts, morphin and spartein, as well as digitalis are tonics of the heart. Spartein acts in morphin suppression, like morphin, as a perfect and immediate heart tonic, and physiologists and patients affirm that spartein enables these patients to walk up hills or to take active exercise which would otherwise have been impossible. The use of Vichy water is in Jennings' opinion the most valuable symptomatic treatment of the gastric and general hyperacidity of suppression.

The morphin habit is a toxic neurasthenia, a disease of overstimulation, and outside the special indications for cardiac tonics, for a flagging heart deprived of its accustomed stimulation, nearly all of the other somatic symptoms may be looked on as nervo-katabolic. They react on one another as the *ensemble* of the somatic disturbances of function react on psychism. The result of overstimulation is to produce metabolic perversion and to cause fatigue, and the fatigue of the nervous centers in its turn causes katabolic insufficiency, the formation of acids, which keep up a condition of nervous exhaustion by chemical changes of the cells. In ordinary healthy tiredness the acids (phosphoric, lactic, carbonic) are soon eliminated, but when fatigue becomes more or less permanent, as in the toxic asthenia of morphinism, the nuclei of the neurones, which in their normal condition are alkaline, become acid, and this can be shown histologically.

There are many intermediary products of imperfect combustion which can be found in the urine, the more perfect oxidation of which, together with the relief of the discomfort caused by them, can be promoted by bicarbonate of soda. Although Vichy water is not *per se* a "cure" for morphinism, it is a factor in treatment conditioning the efficacy of the *ensemble* of the measures employed. Its administration will make all the difference in the addict's comfort during weaning, and its omission may turn the scale to failure instead of to success. In some exceptional cases, those patients who are determined to give up the use of morphin, if they can obtain sufficient relief, have sometimes found that Vichy water was all that was necessary to diminish the general discomfort to a degree compatible with renunciation.

Journal of Laryngology, Rhinology and Otology, London

August

29 Congenital Syphilitic Disease of the Ear. J. S. Fraser.
30 Employment of Hot Air in Otology. C. Ferran.
31 Functional Examination of the Labyrinth. E. J. Moure and P. Cauzard.

Indian Medical Gazette, Calcutta

June

32 The Serodiagnosis of Syphilis. W. D. Sutherland.
33 *Pneumonia: Its Treatment by Iron. F. S. C. Thompson.
34 *Suggestion for Treatment of Gonorrhea. C. Duer.
35 Report of the Medical College Hospital, Calcutta, for 1908. C. P. Lukis.

July

36 Studies Regarding Pathogenic Ameba. H. Werner.
37 Premutiny Jail Administration. C. Dykes.
38 Extraction of the Lens in its Capsule (Smith's Operation) by Division of the Suspensory Ligament. V. B. Nesfield.
39 Alypin with Special Reference to its Hitherto Undescribed Cycloplegic Action. W. E. S. Moncrieff.
40 A Burman Bored Well. W. G. King.
41 Report of the Medical Hospital, Calcutta, for 1908 (continued). C. P. Lukis.
42 Sarcoma of the Lower Lip. O. Langston.
43 Sarcoma of the Femur. O. St. Moses.
44 An Atypical Case of Rabies in a Dog. G. Browse.

33. **Pneumonia Treatment by Iron.**—The exact treatment carried out by Thompson consisted in giving the following prescription:

℞.	gm. or c.c.		m. or 3
Liquoris ferri chloridi	1	or	m. xv
Liquoris ammonii acetatis	4		3j
Aquæ chloroformi, ad	30		3j

Sig.: Every 4 hours.

No other drugs or stimulants are administered, with the exception of a purgative to open the bowels freely at the commencement of the disease. But a careful watch is kept on the heart, and if this shows signs of collapse, as indicated by a weak and quickened pulse, then cardiac stimulants are called in to aid the failing circulation: the pulse is not relied on alone, because it may be full and not much quickened just before death. When necessary, the following prescription is ordered:

℞.	gm. or c.c.		
Liquoris strychninæ	33	or	m. v
Tincturæ digitalis	46		m. vii
Aquæ chloroformi, ad	30		ʒi

This is given alternately with the iron mixture every six hours, i. e., four doses of each in 24 hours. The number of patients treated with iron alone was six; the remaining four needed the addition of the strychnin mixture; no patient received anything but iron before the fifth day. Besides these medicines, general principles were followed in the management of the cases.

34. **Treatment of Gonorrhea.**—Duer suggests to those in charge of military and large hospitals a trial of Bier's treatment, especially in recent cases in which the inflammation is confined to the anterior part of the urethra. An elastic band about 1 in. broad is applied to the penis 2 inches or so above the meatus, continuously, or intermittently, several hours on and several hours off. Rest in bed during the treatment might or might not be necessary. The tightness of the band would have to be carefully regulated so as, while hindering the venous return, not to stop the arterial supply. Frequent washing away of the discharge by some mild antiseptic would be desirable. In addition, irrigation of the urethra beyond the band might be advisable.

Annales de Médecine et Chirurgie Infantiles, Paris

July 15, XIII, No. 14, pp. 469-504

45 *Strangulated Hernia in Infant. (Hernie étranglée chez un nourrisson.) R. de Gaulejac.
46 *Pulmonary Tuberculosis with Cavities in Children. E. Gaujoux and Brunel (continued).

45. **Strangulated Hernia in Infant.**—The strangulation had occurred fifteen days before the child was brought to the clinic; the hernia had been noticed since birth. This long survival could have been possible only with much less toxicity on the part of the intestinal contents than is the case in adults and only with a hernia far along in the digestive tract. An artificial anus would probably have developed spontaneously in the strangulated loop in another day or so. The infant organism has evidently means of adapting itself to functional or mechanical disturbances beyond those possessed by adults. The case encourages, says de Gaulejac, surgical interference even in the most apparently desperate cases in young children.

46. **Pulmonary Tuberculosis with Cavities in Children.**—This article is based on fifty cases, including a number personally observed. Chronic tuberculosis of the lungs is rare in children, but when it does occur the same process of defense is observed as in adults.

Lyon Médical, Lyons

XLI, No. 19, pp. 961-996

47 Usefulness of Aluminum Filters in Radiotherapy. H. Bordier.

No. 20, pp. 997-1036

48 *Hemorrhagic Pancreatitis with Diffuse Peritoneal Fat Necrosis. X. Delore and H. Alamartine.

No. 21, pp. 1037-1092

49 Kidney Complications during Pneumonia. F. Mouisset and J. Challier.

No. 22, pp. 1093-1148.

50 Orbital Puncture. New Mode of Entering the Subarachnoid Space. (Ponction orbitaire.) L. Bériel.

Revue de Chirurgie, Paris

July, XXIX, No. 7, pp. 1-251

51 *Experimental Transplantation of Joints. (La greffe des articulations.) H. Judet.
52 *Esophagoscopic and Clinical Study of Tuberculosis of the Esophagus. Guisez and Abrand.
53 Gunshot Wound of the Cerebral Peduncle. (Lésion pédonculaire par balle de revolver.) G. Guillain and G. Houzel.
54 *Plastic Operation on Ulcerated Ileum to Prevent Impending Perforation. (L'entérocléisis épiploique dans les processus ulceratifs aigus de la dernière anse de l'iléon.) S. Solieri.
55 Sprained Knee. (Entorse du genou par abduction et rotation externe.) M. Gangolphe and C. Thévenet.
56 Dislocations of the Metatarsus. (Luxations du métatarse du diastasis entre le 1er et le 2e métatarsien.) E. Quénu and G. Küss. Commenced in No. 1.
57 Abscesses in the Liver and Expectoration of Bile. (Abcès du foie et expectoration biliaire.) A. Valence.

51. **Grafting of Joints.**—Judet describes experimental arthroplasty on dogs, rabbits and cats, the results showing that the joint, as a whole, with its synovial sheath, has a vital autonomy which permits its being grafted into another animal and retaining its vitality. The transplanted cartilage is the only one of the tissues that alters; it requires the action of synovial fluid. In man the transplantation of a joint would be a much simpler procedure on account of the size of the parts. The article is illustrated with the technic worked out on the cadaver. The great difficulty will be to obtain suitable grafting material.

52. **Tuberculosis of the Esophagus.**—Guisez and Abrand have encountered two cases and review one reported by Schrötter giving an illustrated description of the anatomic findings. If the stenosis is of a sclerocicatricial type, dilatation is possible, proceeding very cautiously. In case of ulceration, the indications are the same as for fissure in a sphincter—gentle dilatation to act on the spasm. Local treatment can be by lactic acid or silver nitrate, as for laryngeal tuberculosis, with general measures. The development of esophagoscopy has permitted the differentiation of this form of tuberculosis.

54. **Omentum Shield for Acute Ulceration in the Ileum.**—Solieri was convinced that perforation was imminent in a case of paratyphoid infection. Appendicitis had been diagnosed as the agglutination test for typhoid had been negative. The operation revealed the absence of an acute process in the appendix, but an ulceration was found in the small intestine. He drew up the omentum over the part of the intestine involved and fastened it like a thick muff all around the diseased loop, suturing the omentum to the mesentery in front, above and below and to the intestine on each side of the affected zone. The patient recovered without mishap except for three severe intestinal hemorrhages.

Revue de Gynécologie, Paris

XIII, No. 3, pp. 371-560. Last indexed July 24, p. 329

58 *Torsion of Subserous and Interstitial Uterine Fibromas. G. Piquand and J. Lemeland.
59 *Obliteration of Douglas Pouch in Treatment of Certain Cases of Uterine Prolapse. G. Marion.
60 *Gastrocutaneous Fistulas Due to Gastric Ulcer. H. M. Jeannel.

58. **Torsion of Uterine Fibromas.**—Torsion was observed by the writers in 23 of 9,000 cases of uterine fibroma. In 55 cases on record in which the puerperal past is mentioned, 12 cases were in virgins and only 36 in women who had borne children. Eight unpublished cases are reported in detail, with fifteen illustrations.

59. **Obliteration of Douglas Pouch in Treatment of Uterine Prolapse.**—The unusually large Douglas pouch in the case reported kept up the prolapse, which was corrected at once by obliterating the cul-de-sac. This was done by running a thread through its walls and drawing it up, repeating this at four points. With forceps a lengthwise fold in the peritoneum was taken up and the needle passed through the fold, and continuing, through six of these folds, to make each one of the four sutures.

60. **External Fistulas Into the Stomach.**—Jeannel presents a second article on this subject, giving the details of 50 cases found in the literature. About 35 operations were performed on 26 of the patients, with a complete cure in 76 per cent. and a fatal outcome in 16 per cent.

Revue de Médecine, Paris

July, XXIX, No. 7, pp. 505-584

61 Morphologic Varieties of Cirrhosis. E. Géraudel.
62 General Plan of the Sympathetic Nervous System. L. Lavastine. Commenced in No. 5.
63 Communication between the Auricles. (Communications interauriculaires au point de vue anatomopathologique, physiologique et clinique.) L. Lyon-Caen.
64 *Hemoglobinuric Bilious Fever. G. Reynaud

64. **Hemoglobinuric Fever.**—Reynaud has found infusion of 250 c.c. of 7 per thousand salt solution two or three times a day effectual in treatment of hemoglobinuric fever, and Gouzien has reported similar success in 53 cases with no mortality. Reynaud summarizes 7 cases from his experience as the pioneer in this line of treatment. The saline infusion must be supplemented by quinin and the patient must be closely supervised all the time.

Archiv für klinische Chirurgie, Berlin

LXXXIX, No. 4, pp. 855-1136. Last indexed Aug. 7, p. 491

65 Post-Traumatic Ossifications. A. Pfister.
66 Defects in Development of the Mesentery and Abnormal Positions of the Intestines, especially of the Large Intestine. (Entwickelungshemmung des Mesenteriums und abnorme Lageverhältnisse des Darms.) E. Sauerbeck.
67 *Transplantation of Thyroid. (Zur Frage der Schilddrüsentransplantation.) H. Salzer.
68 Separation of Epiphysis from Neck of Femur. (Epiphysenlösung des Schenkelhalses und ihre Folgen.) O. Fittig.
69 Surgical Treatment of Generalized Peritonitis. O. Nordmann.
70 *General Anethesia during 1908. (Ueber Inhalationsnarkose.) G. Neuber.
71 *Expulsion of Blood from Lower Part of Body. (Die künstliche Blutleere der unteren Körperhälfte.) Momburg.
72 Congenital Inguinal Hernia. Ueber angeborene Leistenbruchsäcke.) Hansen.
73 Nail Extension for Fractures. (Gegenwärtiger Stand der Nagelextension.) F. Steinmann.
74 Operative Treatment of Subcutaneous, Acute Traumatic, Complete Paralysis of the Lower Roots of the Cervical Plexus. Bardenheuer.
75 Multiplicity of the Renal Arteries and its Surgical Importance. (Multiplicität der Nierenarterie.) J. B. Seldowitsch.
76 Posterior Arthrotomy for Irreducible Dislocation of the Shoulder. (Reposition der irreponiblen Schulterluxation mittelst Arthrotomie von hinten.) Madelung.

67. **Transplantation of the Thyroid.**—Salzer implanted the thyroid in the abdominal wall, making a pocket between the fascia and peritoneum or in the muscle, and in this pocket transplanting part of the animal's own thyroid. Of 60 rabbits thus operated on, 23 died, but the results in the remaining 37 show that the organ heals in place and functionates better in thyroidectomized than in normal animals, and that the transplanted gland is able to produce colloid substance and that its vascularization is fully as good as when in its normal place. As only a small portion can be thus transplanted at a time, it is wise to have the technic as simple as possible. It can not be expected that one small piece can supply the total thyroid needs of the organism.

70. **Anesthesia in Germany in 1908.**—Neuber received 112 responses to question blanks sent out to surgeons requesting particulars in regard to their anesthesias during 1908. Chloroform, it seems, was used in 20,613 cases with 1 death to 2,060; ether in 11,859, with 1 death to 5,930; chloroform plus ether in 10,232, with 1 death in 3,410; and the scopolamin-morphin mixed anesthesia in 23,809 cases, with 1 death in 4,762. Local anesthesia or the first whiffs of ether were utilized in fully a quarter of all cases that would have required general anesthesia twenty years ago and no fatality was reported with these methods. In Gurlt's statistics, 1890-1897, there was 1 death in 2,075 chloroform and 1 in 5,112 ether anesthesias, chloroform having been used five times as often as ether, while in Neuber's statistics the scopolamin-morphin mixed technic takes the lead in numbers, and also from the standpoint of prevention of postoperative pneumonia. Kümmell reports only 0.61 postoperative pneumonias in 1908 in contrast to 2.5 per cent. formerly, von Eiselsberg only 0.9 per cent. to 3.3 per cent. formerly, and Neuber himself has had no cases.

71. **Expulsion of the Blood from the Lower Part of the Body.**—Momburg here reviews the thirty-four cases on record in which operations have been performed after expelling the blood from the lower part of the body by a belt applied like a tourniquet to the waist. The belt was left in place for two hours and twenty minutes in one case, but no deleterious results were observed in any instance or discovered at autopsy in the six cases in which the patients succumbed to an intercurrent affection about three months later or to the progress of the primary trouble. He insists that his technic should be closely followed, using a rubber tube about the size of a finger and four or five feet long, stretched around the body just below the costal arch; the pulse in the femoral artery should be tested at each turn of the belt. Just as this pulse disappears the ends of the tube are tied together and the ends held with a clamp. A tourniquet is then applied to both thighs and below the knees, so that by loosening these various tourniquets in turn the circulation through the lower part of the body is restored by degrees. It is even better to commence by expelling the blood from the limb by winding it upward from the toes. Then, after the belt has been applied, the bandage on the leg is removed and the leg placed lower than the pelvis, thus allowing any blood still in the pelvis to flow down into this leg, leaving this side of the pelvis practically exsanguinated.

Berliner klinische Wochenschrift

July 19, XLVI, No. 29, pp. 1341-1388

77 Tumor in Frontal Lobe of Brain. (Zur Klinik der Stirnhirntumoren.) M. Bernhardt and M. Borchardt.
78 Puncture of the Brain. (Hirnpunktion.) Id.
79 Diagnosis of Syphiloma in the Brain. (Zur Diagnose der Hirnsyphilome.) Frotscher and Becker.
80 The Increased Blood Pressure in Nephritis. (Zur Theorie der nephritischen Blutdrucksteigerung.) G. Marcuse.
81 Comparison of Diastolic Blood Pressure as Determined by Various Methods. (Was lehrt uns der Vergleich der mit verschiedenen Methoden gewonnenen diastolischen Blutdruckwerte?) B. Zabel.
82 Seroreaction in Syphilis in Relation to Antitryptic Power. (Die Luesreaktion in ihren Beziehungen zur antitryptischen Kraft des menschlichen Blutes.) A. Fuerstenberg and J. Trebing.
83 *Constipation Resulting from Excessive Absorption of Fluids in Feces. (Eine neue Grundlage zur Beurteilung und Behandlung der chronischen Obstipation.) Lipowski.
84 Opsonic Vaccine Treatment. (Vaccinetherapie.) Reiter.

July 26, No. 30, pp. 1389-1436

85 *Treatment of Acute Infectious Processes with Retention of Function. C. Ritter.
86 Cobra Venom Hemolytic Test. (Wesen der sogenannten "Psychoreaktion" nach Much.) A. Zaloziecki.
87 Induced Insanity. (Zur Kasuistik des induzierten Irreseins.) R. Sartorius.
88 Action of Neutral Red Salve on Experimental Vaccine Infection. (Wirkung einer Neutralrotsalbe auf die experimentelle Vaccineinfektion beim Kaninchen.) E. Friedberger and J. Yamamoto.
89 *Staining Living Human Eye for Diagnostic Purposes. (Ueber das Färben lebender menschlicher Augen zu physiologischen und zu diagnostischen Zwecken.) C. Hamburger.
90 *Quantitative Tests for Pancreas Functioning. O. J. Wynhausen.
91 Bacteriology of the Stomach. (Zur Bakteriologie des Magens.) M. Hirschberg and H. Liefmann.

83. **Excessive Intestinal Absorption as Cause of Constipation.**—Lipowski found that normal persons absorbed and retained from 30 to 90 c.c. of 200 c.c. of tepid salt solution gently injected into the rectum and allowed to remain for fifteen minutes, while persons inclined to chronic constipation invariably retained from 150 to 180 c.c. He calls this proportion between the amount injected and the amount absorbed the "resorption coefficient." In Fleiner's method of treating constipation by injection of oil, the main factor in the result is that the oil interferes with absorption in the intestines, and thus the feces remain of softer consistency. On account of the various disadvantages of oil, which Lipowski enumerates, he uses paraffin for this purpose, injecting it into the rectum where it spreads out in a thin layer over the mucosa, effectually preventing absorption. He asserts that it is entirely non-irritating, does not decompose, and can remain in the intestine over night, thus dispensing with the reclining necessary after taking the "oil cure" during the day. The paraffin does not generate flatus, while the laxative effect is prompter than with the oil. He has applied this treatment of constipation in 53 patients; the paraffin was injected in the morning in 46 cases and at night in the others. In every case spontaneous defecation followed after a few days, and then the intervals between the injections were lengthened and the amount reduced. He uses paraffin with a melting point of 38 C. (101 F.), mixing some with a melting point at 78 C. (173 F.), with liquid paraffin in the proportion of 1/8. This mixture is warmed until the whole is fluid, and about 200 c.c. (nearly 7 ounces) are injected through a soft bowel tube, 20 cm. (8 inches) long, the syringe being also warmed. Instead of classifying constipation as merely spastic, atonic or fragmented, he insists that the absorbing capacity of the terminal bowel must always be taken into account.

85. **Treatment of Infectious Processes with Retention of Function.**—Ritter pays tribute to Bier as having revolutionized the treatment of acute infectious processes to prevent destruc-

tion of tissue and deformity. Bier's hyperemic treatment and the more recent ferment treatment ensure healing with retention of function, a result which has assumed greater importance since the introduction of industrial insurance. Ritter then announces that the same results may be obtained by much simpler means, and reports a number of cases to sustain this assertion. All that is necessary is to keep puncturing the process while maintaining arterial hyperemia in the simplest way, which is by plunging the part into water as hot as the patient can bear it, for half an hour or an hour at a time, three times a day. He punctures every day, each time at a separate place, to avoid fistulas. The cavity fills up with serous fluid with very few pus corpuscles; the organism thus supplies its own "ferment." After the third day he punctures only on alternate days. By this means Ritter has seen suppurative processes in the neck, axilla and groin subside without leaving a trace. Encouraged with this success in eleven cases, he treated felons, suppurating affections of the knee joint, cerebrospinal meningitis, etc., all confirming the efficacy of repeated puncture as an efficient mode of treating acute suppurative processes without impairment of function. He is convinced that previous efforts to prevent reabsorption of infectious matters have been based on false premises, that the results with lowering the part, immobilization, bed rest, etc., have given good results only because they were none of them absolutely effectual in preventing absorption. Even the constricting band does not accomplish this, as the wave that follows its removal flushes out the part. It is safer to have the absorption proceed more gradually, and he thinks that a safe, simple and effectual technic has been found in the daily puncture and hot-water treatment.

89. **Stain for the Living Human Eye for Diagnostic and Other Purposes.**—Hamburger announces that he has been experimenting for nearly a year with internal administration of fluorescein which discolors the tissues as in jaundice without harm, as the effect soon disappears. In the dose of 1 gm. (15 grs.) per 25 pounds of body weight, the stain does not discolor the healthy human eye or at most not until after two or three hours, while if the eye is inflamed or diseased it is discolored almost at once. The effect is most striking when only one eye is affected. He explains this as owing to the peculiarly slow and quiet intraocular metabolism of the human eye in physiologic conditions, while all this is totally changed with the onset of inflammation. The inflammation must be true intraocular irritation to attract the stain; mere conjunctivitis does not cause the discoloration, nor the mere presence of a foreign body. The results are interesting for physiologic study of the eye and also for diagnosis of ocular inflammation.

90. **Quantitative Tests of the Pancreas.**—Wynhausen has found that it is possible to estimate the functioning of the pancreas by quantitative determination of the diastasic and tryptic ferments in the stool. He used the Wohlgemuth and Fuld technics and reports the details of several cases demonstrating the precision and reliability of this method of testing pancreas functioning.

Correspondenz-Blatt für Schweizer Aerzte, Basle

July 1, XXXIX, No. 13, pp. 433-472

92 *Suprarenal Treatment of Osteomalacia. S. Stocker, Jr.
93 *Pulverized Clay in Treatment of Diarrhea and Dysentery. (Zur Ehrenrettung der Bolus alba.) Frei.
94 *Eye Glasses and Astigmatism. (Brillen und Astigmatismus.) A. Dutoit.

July 15, No. 14, pp. 473-504

95 Diagnosis and Treatment of Glaucoma. O. Haab.
96 Obstetrics and the General Practitioner. A. Gœnner.

92. **Suprarenal Treatment of Osteomalacia.**—Stocker reports what he thinks is the first case of non-puerperal osteomalacia treated with adrenalin. Slight improvement was evident about the sixth injection, but it proved transient, and recurrence of severe symptoms compelled castration, which proved promptly successful. One ovary was found in cystic degeneration, the other was enlarged and adherent. He tabulates the details of twenty-two other cases of osteomalacia treated with adrenalin that have been reported, the results demonstrating that in each of the 14 cases in which improvement was observed, a turn for the better was evident after the first or second injection.

93. **Bolus Alba in Tropical Dysentery.**—Frei quotes with approval Sahli's remark that the old text-books ought to be saved, as they contain many things which we throw aside in our eagerness for the new, but which time may bring into favor again, and he cites bolus alba as an instance of this foolish discarding of an extremely useful remedy. He has found it rapidly effectual in treatment of diarrhea in adults and children. In a case of tropical dysentery which had resisted all kinds of treatment and dieting for months, in the hands of a number of eminent clinicians, and had reduced the young woman to a skeleton, a prompt change for the better was observed under bolus alba treatment, and complete cure soon followed and has persisted for nearly a year to date. He gave the bolus alba according to Stumpf's directions, suspended in water, 50 gm. in 200 c.c. water, and nothing was eaten for eighteen hours afterward, but the patient was allowed to drink freely and at the end of the eighteen hours to eat a light but abundant meal. Four hours later another dose was given and the patient fasted again for eighteen hours. This was kept up with smaller doses of the bolus two or three times a day with regular meals. The diarrhea was arrested by the third day of treatment and improvement in the general condition proceeded at a rapid pace, but the patient was advised to take 10 gm. of the bolus daily for another month, and was soon in good health, weighing 140 pounds.

94. **Eyeglasses and Astigmatism.**—Dutoit warns that no one except an expert ophthalmologist should prescribe glasses when there is any suspicion of astigmatism, but he asserts that special skill is not required to prescribe glasses for simple myopia, hypermetropia and presbyopia if care is taken to avoid overcorrection.

Deutsches Archiv für klinische Medizin, Leipsic

XCVI, Nos. 5-6, pp. 419-594. Last indexed July 24, p. 330

97 Variations in Weight and Concentration of Blood in Diabetes. (Gewichtsschwankungen und Blutkonzentration bei Diabetes mellitus.) E. Reiss.
98 Concentration of Blood in Pneumonia. J. Sandelowsky. Id. in Scarlet Fever. S. Oppenheimer and E. Reiss.
99 Blood Pressure-raising Substance in the Kidney. (Blutdrucksteigernde Substanz der Niere.) A. Bingel and E. Strauss.
100 Etiology and Pathologic Anatomy of Rheumatic Myocarditis. E. Bracht and Wächter.
101 *Tympanites in Infectious Diseases, especially Pneumonia. (Auftreten eines toxischen Meteorismus bei Infektionskrankheiten, insbes. der Pneumonie.) G. Krönig and F. Klopstock.
102 Influence of Food and Fever on Elimination of Sugar and Acid in Diabetes. (Einfluss der Nahrung und des Fiebers auf die Zucker- und Säureausscheidung beim Diabetes mellitus.) A. Gigon and R. Massini.
103 Pure Congenital Dextrocardia. (Zur Kasuistik und Lehre von der angeborenen reinen Dextrokardie.) M. Nagel.
104 *Research on Experimental Lead Poisoning. (Untersuchungen bei experimenteller Bleivergiftung.) P. Schmidt.

101. **Tympanites in Infectious Diseases.**—The clinical and experimental evidence on hand seems to indicate, Krönig declares, that the tympanites observed in the course of an infectious disease is not the expression of a complicating intestinal disturbance, but merely the consequence of the general intoxication. The rapid subsidence of the meteorism after the crisis in pneumonia speaks in favor of a toxic influence on the central organ rather than of any special toxic action on the intestines or their innervation. Compare, for example, the slow and tedious subsidence of toxic affections of the myocardium or of a postdiphtheritic polyneuritis with the prompt recuperation of bowel functioning after the crisis in pneumonia. The rapid, superficial breathing in an infectious disease is favored by the upward displacement of the diaphragm; the reaction occurs differently in women, with their soft, yielding abdominal walls, than in men with powerfully developed abdominal muscles. In men even a slight development of gas has a tendency to push up the diaphragm to a dangerous extent. In any event, this toxic tympanites in infectious diseases is extremely important, requiring treatment as imperiously as beginning heart weakness. Treatment must aim to prevent development of intestinal gases and to expel those already formed. Besides dietetic measures to prevent formation of gases, and purgatives, enemas, and especially repeated introduction of a soft bowel tube, leaving it long in place, to promote the passage of flatus, the administration of strychnin is important as a means of re-enforcing the other measures to restore tone to the intestines. Physostigmin has not fulfilled

the anticipations roused by its action in tympanites of other origin. It has failed completely in a series of cases of this toxic meteorism, but its property of stimulating to spasmodic contraction when the bowel is relaxed under the influence of atropin encourages further trials of it. Experimental and clinical experience seem to conflict here.

104. **Experimental Lead Poisoning.**—Schmidt concludes from his research that the lead keeps up a constant wandering through the body until its final elimination, and that the leucocytes play the most important part in the defensive processes against it. Consequently, the organism is better protected against lead poisoning when there are large numbers of leucocytes. The conditions and indications in metal poisoning, therefore, approximate those in infectious diseases.

Deutsche medizinische Wochenschrift, Berlin

July 22, XXXV, No. 29, pp. 1257-1296

105 Etiology of Sleeping Sickness. (Weitere Untersuchungen über die Aetiologie der Schlafkrankheit.) Kleine.
106 Cultivation of the *Spirochæta pallida*. J. Schereschewsky. Id. Mühlens.
107 Intestinal Myomas. (Zur Kasuistik der Myome des Darmes.) R. Frotscher.
108 *Sudden Death, with Special Regard to Indications for Operative Treatment of Embolism of the Lung. (Ueber plötzliche Todesfälle mit besonderer Berücksichtigung der Indikationsstellung für die Trendelenburgsche Operation bei Lungenembolie.) M. Busch.
109 Subcutaneous Perforation of the Digestive Tract. (Zur Kenntnis der subkutanen Perforationen des Magendarmkanals.) Dege.
110 Plastic Operations on the Quadriceps. (Quadrizepsplastik.) F. Selberg.
111 Cause and Treatment of Pain in the Breast. (Ueber Mastodynie.) M. Samuel.
112 *Gastrosuccorrhea and Pyloric Stenosis in Infants. (Der "Magensaftfluss" in der Pathogenese und im Verlauf der Pylorusstenose der Säuglinge.) Engel.

July 29, No. 30, pp. 1297-1336

113 Staining Technic for Typhoid Bacilli. (Ein neues Verfahren zum Nachweise und zur Differentialdiagnose der Typhusbakterien mittels Malachitgrün-Safranin-Reinblau-Nährböden.) F. Loeffler, E. Walter, E. Dibbelt and J. Wehrlin.
114 Rachitic Coxa Valga. A. Stieda.
115 Operability of Gastric Cancer. (Operabilität der Magenkrebse.) H. Braun.
116 *Treatment of Cardiospasm. M. Makkas.
117 Vaccine Treatment of Multiple Abscesses in Infants. (Behandlung der multiplen Abszesse der Säuglinge mit spezifischem Vakzin.) Wechselmann and G. Michaelis.
118 Slab of Meat and Bone for Testing Roentgen Tubes. (Ein neuer Härtemesser.) P. Harrass.
119 Semimillennial of the Leipsic Medical Faculty. K. Sudhoff.

108. **Sudden Death and Indications for Operative Treatment of Pulmonary Embolism.**—Busch states that of the 878 fatalities among the 9,727 patients in Körte's surgical service at Berlin during the last four years, 22 of the deaths occurred suddenly and the symptoms indicated pulmonary embolism. He has been investigating the records of this group of 22 sudden deaths to determine whether the embolus could have been successfully removed. In 12 cases, death occurred instantaneously, and yet autopsy in 7 of the 12 revealed embolism in 4, the findings very similar to those in the more protracted cases of embolism. In one case a thrombus about 7 cm. long, about the size of a pencil, was found at the bifurcation of the pulmonary artery and it could have been readily removed. The Trendelenburg operation is indicated, therefore, in such cases when conditions are favorable for immediate operation. In 10 other cases the syndrome of the embolism persisted from ten minutes to three hours before the fatal termination. Autopsy revealed embolism in 6 and conditions would have been favorable for operative intervention in 5 cases. In 4 others the assumed embolism did not exist; these 4 patients were about 50 and 70, and were being treated for a broken arm or femur or ovarian cyst, with no threatening symptoms of heart trouble. A syndrome characteristic of pulmonary embolism suddenly developed in the midst of apparently complete well-being, and death followed in from ten to thirty minutes and autopsy disclosed merely brown atrophy or fatty degeneration of the heart. In the 6 cases of positive findings the embolus extended to the remotest ramifications of the artery in 1, but in others the embolus was short and straddled the bifurcation or was loose in the left branch of the artery. In 3 other cases the typical syndrome of embolism developed suddenly in patients between 47 and 58 after an operation for gallstone or pyloric stenosis or inflamed varices on the legs. An operation was debated, but under intravenous digitalis and subcutaneous camphor and caffein the heart action grew stronger and the embolism tempest blew over, but in the oldest patient, with the pyloric stenosis, signs of gangrene of the lungs developed in a few days to which the patient succumbed; the embolism gangrene involved nearly the whole of the left lower lobe. Körte advocates in case of the onset of the embolism syndrome, morphin to tranquilize the respiration, then a preparation of digitalis injected into a vein while all is made ready for an operation which then follows if these measures fail to improve, unless contraindicated by the general condition.

112. **Importance of Hypersecretion in Origin of Pyloric Stenosis in Infants.**—Engel reports from Schlossmann's pediatric clinic at Düsseldorf two cases of typical stenosis of the pylorus in infants in whom the stenosis syndrome had probably been preceded by a phase of excessive secretion of gastric juice—actual gastrosuccorrhea. As he believes that "psychic gastric secretion" is out of the question in infants less than a month old, the discovery of large amounts of gastric juice in the empty stomach is, he asserts, necessarily pathologic. He accepts it as proved that hypersecretion alone without hyperacidity is able to induce spasmodic contraction of the pylorus. The stenosis is purely spastic at first, as evidenced by the previous unrestricted passage of fluid. Under the influence of the spasmodic contraction the pylorus becomes more or less hypertrophied, so that after the subsidence of the hypersecretion and of the spasmodic contraction the lumen of the pylorus is left a little smaller and several weeks may elapse before entirely normal conditions are restored. This assumption of the primary importance of the gastrosuccorrhea explains all the features of pyloric stenosis in infants. In both of the cases and in others in the literature small intercurrent hemorrhages occurred in the stomach, the presence of the blood inducing such profuse secretion of gastric juice that violent paroxysms followed. In one case the child vomited forty times in twenty-four hours and in the other, in which the hemorrhage was very small, the child vomited ten times in a few minutes and 50 c.c. of the stomach content were aspirated almost at once. His cases are instructive, as in both feeding was exclusively by way of the intestines, the stomach being entirely excluded. He is inclined to accept a nervous disturbance as the basis of the whole trouble—an isolated secretory anomaly.

116. **Non-Operative Treatment of Cardiospasm.**—Makkas reports two cases of severe cardiospasm in young men, with extreme dilatation of the esophagus, the symptoms having been in evidence for nearly three and five years, respectively. Both patients were cured by gradual dilatation of the cardia with Gottstein's sound, which consists of an inner and outer rubber bag with an inelastic thick silk interlining between the two. The bag is introduced and then filled with water, the soft even pressure of the spindle-shaped distended bag effectually combating the spasm. Gottstein has reported five cures in seven patients thus treated.

Medizinische Klinik, Berlin

July 25, V, No. 30, pp. 1105-1144

120 Blood Pressure and Courses of Mineral Waters. (Blutdruck und Trinkkur.) H. Strauss.
121 *Infiltration Treatment of Sciatica. (Infiltrationstherapie der Ischias.) A. Bum.
122 Bacteriologic Study of Streptococci. (Streptokokkenversuche.) B. Zoeppritz.
123 Colloidal Chemistry and Balneology. H. Schade.
124 Treatment of Typical Fracture of the Radius. P. Glaessner.
125 Keratinized Pills. (Die Keratinierung der Dünndarmpillen im Lichte der neueren Keratinforschung.) L. Golodetz.
126 Medical Certificates. (Ueber ärztliche Zeugnisse und Gutachten.) T. Rumpf.

121. **Infiltration Treatment of Sciatica.**—Bum reports that more than half the patients were cured by the infiltration technic in 308 cases in his practice during the last four years and a half. The proportion was 52.2 per cent. cured and 23.9 per cent. improved in the 46 subacute cases, and 63.5 per cent. cured and 19 per cent. improved in the 228 chronic cases, the duration of the sciatica ranging from four weeks to seventeen years. The duration of the affection did not seem to influence the effect of the infiltration treatment, and the cure was permanent, the patients being absolutely free from pain for months and years without any efforts to spare the limb. He

never applies this treatment in the acute cases, as recent neuritis yields to bed rest and medicinal or physical diaphoresis. The infiltration technic aims to detach, without the knife, the perineuritic adhesions that have formed around the formerly inflamed nerve. If the result is not realized in one sitting, the injection should be repeated two or three times. He uses plain physiologic salt solution, injecting from 100 to 120 c.c. at once under strong pressure, the patient in the supported knee-elbow position, the cannula, 1.8 mm. in diameter and about 10 cm. long, introduced at the point on the thigh where the long head of the biceps is crossed by the lower edge of the gluteus maximus. The needle is introduced for about half its length and then the proximal end is lowered, while the needle is pushed slowly in for about 3 cm. farther. This brings the point to the sciatic nerve and the injected fluid pours into the nerve sheath, breaking up adhesions and setting the nerve free. He never made more than four injections in any case. Recurrence was observed in 4.7 per cent. only.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

July, XXX, No. 1, pp. 1-136

127 *Treatment of Elongated Cervix by Supravaginal Resection of the Cervix with Retention of Connection with the Vagina. (Ein neues Verfahren der supravaginalen Cervixresektion mit Erhaltung der Portio vaginalis bei Elongatio colli.) R. Werth.
128 Statistics of Operations for Uterine Cancer at Prague. O. von Franqué.
129 Morphologic Behavior of Minute Glands Encircling the Nipple. (Morphologisches Verhalten der Montgomeryschen Drüsen.) K. Natanson and W. Goldschmidt.

127. **Supravaginal Resection of Cervix.**—Werth compares the technic and ultimate outcome in six cases of elongated cervix requiring operative interference treated by the old technic and six treated by a new method, of which he gives an illustrated description. The unduly long cervix is resected above its implantation in the vagina, working through a median incision in the anterior roof of the vagina. The stumps are sutured together with catgut through the entire thickness of the cervix wall.

Münchener medizinische Wochenschrift

July 20, LVI, No. 29, pp. 1457-1520

130 Outlook for Treatment in Progressive Paralysis. K. Alt.
131 Behavior of Organic Preparations of Arsenic in the Human Body. (Verhalten organischer Arsenpräparate im menschlichen Körper.) P. Fischer and J. Hoppe.
132 The Cobra Venom Hemolytic Reaction. (Eine Reaktion im Blute von Geisteskranken.) C. Fraenkel, Kathe and Bierotte. Id. (Hemmung der Kobrahämolyse durch das Serum von Geisteskranken und körperlich Kranken.) W. Beyer and W. Wittneben.
133 Roentgen Examination of Movements of Bladder. (Biozystographie.) A. v. Lichtenberg, H. Dietlen and W. Runge.
134 Pathology of the Metabolism in Epilepsy. (Zur Stoffwechselpathologie der Epilepsie.) W. Tintemann.
135 Active Substance in the Hypophysis. (Zur Kenntnis der wirksamen Substanz in der Hypophysis.) R. Allers.
136 General Anesthesia and Lecithin. (Narkose und Lezithin.) J. Nerking.
137 Importance of Oxydase Reaction in Diagnosis of Leukemia. (Zur Leukämiefrage.) J. Peters.
138 Cosmetic Middle Ear Operations. (Was kann und muss man in kosmetischer Hinsicht von der Radikaloperation der chronischen Mittelohreiterung verlangen.) Heermann.
139 *Ischemia Induced in Congested Nasal Mucosa by Application of Cold to the Back of the Neck. (Ein prophylaktisch-therapeutischer Vorschlag für nasale Reflexneurosen.) O. Muck.
140 *Abdominal Operations in Country Practice. (Bauchoperationen in der Landpraxis.) Paysen.
141 Carbon Monoxid Poisoning. (Zwei Fälle von Kohlendunstvergiftung in hygienischer und gerichtlich-medizinischer Beleuchtung.) Federschmidt.
142 Suction Apparatus in Treatment of Acute Coryza in Infants. (Zur Behandlung des akuten Schnupfens der Säuglinge.) W. Schultz.

139. **Application of Cold to Back of Neck to Relieve Congestion in Nose.**—Muck has been making practical application of Winternitz' suggestion to influence the lumen of the vessels by reflex action from cold or heat applied locally to the skin. He has found that cold water poured over the back of the neck or a cold douche applied for a few seconds has a decided influence in relieving congested conditions in the nose and also bronchial asthma if it is due to a nasal reflex. He ascribes the result to the direct action on the vasomotor and respiration centers; the same effect is not realized by application of cold elsewhere to the body nor by mere application of cloths wrung out of cold water. The mechanical stimulus of the pouring water seems to be an important element in the relief experienced. Before dressing in the morning the simple application of the cold douche to the back of the neck gives great relief in chronic simple rhinitis and is liable to relieve the suffocation in asthma.

140. **Abdominal Operations in Country Practice.**—Paysen relates a number of incidents from his experience to show the necessity for immediate operation on the spot in many cases of incarcerated hernia, etc., the patients owing their lives to his prompt intervention, and he urges the country practitioner not to hesitate to undertake such at need without temporizing.

Wiener klinische Wochenschrift, Vienna

July 22, XXII, No. 29, pp. 1023-1058

143 Pathology of Rabies. (Wutkrankheit beim Menschen.) R. Paltauf.
144 The Hemolytic Cobra Venom Test. (Verhalten menschlicher und tierischer Blutkörperchen gegenüber Kobragift unter normalen und pathologischen Verhältnissen.) R. Kraus, O. Pötzl, E. Ranzi and H. Ehrlich.
145 Mixed Leukemia. (Zur Frage der gemischten Leukämie.) A. Herz.
146 *Operation for Femoral Hernia by Inguinal Route. (Operation der kruralen Hernie auf inguinalem Wege.) R. Frank.
147 *Radical Operation for Inguinal Hernia by Roux Technic. F. v. Gschmeidler.
148 *Preserved Human Milk for Feeding Weakly New-Born Infants. (Die Milch-beschaffung für die Ernährung lebensschwacher Neugeborener mit konservierter Frauenmilch nach Meyerhofer und Pribram.) W. Rosenfeld.
149 Early Roentgen-Ray Diagnosis of Intestinal Stenosis. (Zur Frühdiagnose der Darmstenosen mittels Röntgenstrahlen.) R. Bacher.

July 29, No. 30, pp. 1059-1090

150 Interaction of Glands with an Internal Secretion. (Weitere Mitteilungen über die Wechselwirkung der Drüsen mit innerer Sekretion.) W. Falta.
151 Dependence on the Normal Functioning of the Liver of the Pairing of Camphor-Glycuronic Acid. (Abhängigkeit der Kampfer-Glukuronsäurepaarung von der normalen Funktion der Leber.) K. von Stejskal and H. Friedrich.
152 Research on Agglutination of Blood Corpuscles. (Zur Kenntnis der Hämagglutination.) H. Raubitschek.
153 Successful Outcome of Suture of Median Nerve a Year after Traumatic Section. R. C. Porges.

146. **Operation for Femoral Hernia Through the Inguinal Canal.**—Frank's technic is instructively shown in ten illustrations. The sac is drawn out through the inguinal ring, ligated and resected, the ends of the ligature drawn out through the muscles some distance above, where they are tied. The tendency to hernia is then corrected by suturing the posterior margin of Poupart's ligament to the pectineal fascia and the periosteum of the horizontal branch of the pubis, followed by passing four threads through the triangular ligament drawing it up to the muscles above.

147. **Roux' Nail Operation for Femoral Hernia.**—Roux fastens with a double-pointed nail the edge of Poupart's ligament to the horizontal ramus of the pubis as a radical means of curing femoral hernia, and Hochenegg has applied this technic in 38 cases of femoral hernia since 1904, all but 8 in women, general anesthesia being used in 33. The ultimate outcome in 28 cases is known, the interval ranging from six months to four years. The results have been satisfactory in every respect, even in one case in which the nail was felt to be loose. The outcome compares favorably, he considers, with other methods, while the simplicity of the operation commends it for certain cases.

148. **Preserved Human Milk for Infant Feeding.**—Rosenfeld regards Mayerhofer and Pribram's suggestion that human milk can be preserved and used for artificial feeding of feeble new-born infants as a great advance, provided that the production is restricted to hospitals and asylums and kept under strict medical supervision. The milk is drawn with a valve breast pump, described in these columns May 29, 1909, page 1803; this simulates the intermittent sucking of the child and the breast responds by yielding all its milk. Nearly 3 ounces can thus be drawn in a few minutes. The breasts seem to secrete more milk as more demands are made on them, so that the women's own children do not suffer from loss of the extra amount drawn. He calculates that the three or four maternities at Vienna, with an average of 120 parturients, could easily supply about 20 quarts of fresh breast milk a day for this purpose, ample to supply 50 feeble new-born with the life-giving fluid. In order to keep a sufficient supply on hand, the mixed milk is sterilized by the Budde process, that is, addition of a small proportion of hydrogen dioxid as the milk is heated to a moderate temperature, not over 55 C. in

the water bath. This sterilizes it completely while not impairing its vital properties, taste or aspect, according to experiences reported by Escherich and others. Infants fed on breast milk thus prepared and kept until needed seemed to thrive excellently, in every respect as if fed directly from the breast. The main point, Rosenfeld emphasizes, is to keep this milk supply out of commercial hands, as it should be a strictly medical affair.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 22, XXX, No. 87, pp. 913-920

154 Cerebral Hemorrhage in Children. (Emorragia cerebrale nell'infanzia.) G. Ghetti.

Policlinico, Rome

July 11, XVI, No. 28, pp. 869-900

155 *Stricture of Female Urethra. (Restringimenti uretrali nelle donna.) F. Cuturi. Commenced in No. 27.
156 *Chloroform and Ascarides. V. Barnabo.

July 18, No. 29, pp. 901-932

157 The Paravertebral Triangle of Dulness in Pleurisy. (A proposito del triangolo paravertebrale opposto di Grocco.) T. Silvestri.
158 Antitoxin in Prophylaxis of Diphtheria. (Della sieroprofilassi antitossica in un'epidemia di difterite.) A. Politi.

July, Medical Section, No. 7, pp. 289-328

159 Improved Technic for Opsonic Method. (Di un nuovo metodo opsonico. Teoria opsonica. Di un metodo fagocitario.) M. Copelli.
160 Nature and Pathogenesis of Unilateral Pleural Effusion in Heart and Kidney Disease and in Arteriosclerosis. (Versamenti pleurici unilaterali nei cardiaci, nei cardiorenali e negli arteriosclerotici.) F. Feliziani.
161 *Gastric Cancer and Salomon's Test. (Carcinoma gastrica e prova di Salomon.) G. Alessandri.

155. **Stricture of the Female Urethra.**—Cuturi concludes his study of the treatment of stricture by emphasizing that the dilatation must act dynamically, not mechanically. Extreme gentleness is necessary. In a hemophilic patient he found it possible to prevent recurrence of hemorrhage from introduction of the sound by previous instillation of 2 per cent. silver nitrate. Traumatic and obstetric stricture requires internal urethrotomy, as dilatation is ineffectual in callous tissue.

156. **Chloroform and Helminthiasis.**—Barnabo was performing a laparotomy in a young women when severe retching was observed with acute suffocation and threatening syncope. Opening the patient's mouth to make traction on the tongue, the tip of an ascaris was seen in the throat and prompt recovery followed its removal. Two others were vomited about six hours later, after which recovery was uneventful. He was present in another case in which fatal suffocation from worms occurred during chloroform anesthesia, and thinks it possible that some of the "chloroform deaths" on record may have been due to unsuspected worms. He now makes a practice of inquiring before operating whether the patients have known of the presence of helminths. His patient told him afterward that she had passed some helminths shortly before. If he had been aware of this he would have postponed the operation until after a course of worm medicine. He thinks that the chloroform is responsible for the migration of the helminths.

161. **Gastric Cancer and the Salomon Test.**—Alessandri reports the findings of the Salomon test applied in twelve cases of stomach trouble suggesting cancer, the results being controlled by other tests. In every case of carcinoma of the stomach confirmed by the course of the affection the Salomon test gave positive findings, while they were negative when the cancer was in a neighboring organ or if the trouble was of other origin. The reaction may be positive when the ulceration is so small that its presence is not revealed by the ordinary clinical methods. It seems to be established that cancer of the stomach displays a tendency to ulcerate exceptionally early, which enhances the value of this test. The technic was described in THE JOURNAL, Sept. 12, 1903, page 694.

Riforma Medica, Naples

July 12, XXV, No. 28, pp. 757-784

162 *Inguinal Hernia in Children. (Contributo statistico all cura radicale dell'ernia inguinale nei bambini, con speciale riguardo a quelle del cieco e dell'appendice.) G. Andrei.
163 Two Cases of Inguinal Hernia of the Ovary. C. Laccetti.

July 19, No. 29, pp. 785-812

164 Atrophy of the Hand. (Atrofia della mano, del tipo Aran-Duchenne, segmentaria, congenita, eredofamiliare, non progressiva.) R. Ciauri.
165 *Experiences with 206 Cases of Mammary Cancer. L. Fiori.

162. **Inguinal Hernia in Children.**—Andrei reports the operations for inguinal hernia at the Florence surgical pediatric clinic, a total of 430 inguinal hernias in 395 children, all but 38 being boys. The Bassini technic was used except in one case. The mortality was 1.77 per cent. One of the 7 children who died was a child a month old with strangulation of the hernia ten days before the operation. Inguinal hernia is congenital less frequently than is generally assumed, and strangulation is comparatively rare, while the effects are less serious than in adults at first. The experiences with 6 children operated on under the age of six months and 59 under twelve months, 97 between one and two years and 47 between three and four, confirm the advisability of operating early, as herniotomy is borne well even by very young children, and the single operation is preferable to the wearing of a truss if conditions do not permit of scrupulous care. Strangulation was observed in 14, that is, 3.25 per cent. of the total 430 hernias, and in all but 4 cases were in boys less than a year old. The tendency to strangulation and to recurrence is much less in children than in adults, owing to the elasticity of the tissues. In 16 cases the appendix was found in the hernia, but Andrei advises against removing it, if sound, at the herniotomy.

165. **Mammary Cancer.**—Fiori reviews the experiences with 206 cases of mammary carcinoma at Ceci's surgical clinic at Pisa, 1888-1908. One patient was between 20 and 25 and one between 25 and 30; 13 between 30 and 35 and 22 between 36 and 40, while only 3 were over 70. He has been able to follow the ultimate outcome in a large proportion of the cases. Among these, of the 7 patients with small tumor, nonadherent to the skin, with only a few glands in the axilla slightly enlarged, 4 are still in good health from seven to eleven years after the operation, one succumbed to an intercurrent disease, one was healthy when last heard from and one returned in a few months with an inoperable recurrence. Of the 40 with more advanced cancer, 20 are still in good health after three or more years, and of the 23 with involvement of the entire breast, the tumor adherent to the skin and pectoral muscles with ulceration or multiple nodules and metastasis, one is still alive after three years; 65 per cent. succumbed to generalization of the malignant disease and 30 per cent. to local recurrence, while 2 others were in good health after seven and seventeen months. The permanent cures in these three groups of cases are thus: 80 per cent.; 50 per cent. and 5 per cent., for intervals ranging from three to thirteen years to date. The interval between the first signs of the tumor and the operation was from fifteen days to three months in 29, and between one and five years in 52; in 5 cases there had been an indolent nodule since early life.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

THE MEDICAL DIRECTORY OF INDIA, BURMA AND CEYLON, 1909. Second Edition. Cloth. Pp. 167. Compiled and Published by the Editor of *Practical Medicine*, Delhi.

THE SEXUAL DISABILITIES OF MAN. By Arthur Cooper, Consulting Surgeon to the Westminster General Dispensary. Cloth. Pp. 184. Price, $1 net. New York: Paul B. Hoeber, 1909.

MANUAL OF THERAPEUTICS. Referring Especially to the Products of the Pharmaceutical and Biologic Laboratories of Parke, Davis & Co., Detroit, 1909. Flexible Leather. Pp. 643. Given free to physicians on request, by Parke, Davis & Co.

SEMMELWEIS, HIS LIFE AND HIS DOCTRINE. By Sir William J. Sinclair, M.A., M.D., Professor of Obstetrics and Gynecology in the University of Manchester. Cloth. Pp. 369. Price, 7 shillings 6 pence. Manchester: At the University Press, 1909.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Vol. XXI. Twenty-First Session held at St. Louis, Dec. 15 to 17, 1908. Edited by W. D. Haggard, M.D. Cloth. Pp. 488, with illustrations. Published by the Association, 1909.

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